ACKNOWLEDGMENTS

This report has been compiled from Division of Water data and from information supplied by the following:

Precipitation data:
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service; The Miami Conservancy District; U.S. Army Corps of Engineers, Muskingum Area.

Streamflow and reservoir storage data:
U.S. Geological Survey, Water Resources Division.

Lake Erie level data:
U.S. Corps of Engineers, Detroit District.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

GROUND-WATER LEVELS *Continued*

month for the period of record beginning in 1954.

Ground-water levels in the Dayton area have risen to the highest levels observed since the beginning of record in 1946. Since 1950 the water levels in the Dayton area have declined from year to year due to over pumping of the aquifer by industries in the area. It has been said that the Dayton area is one of the largest users of ground-water in the nation. In 1970, the water levels in the area were so low that the county constructed a million dollar project in the southern end of Dayton to help replenish the aquifer. Since 1971, due to cessation of pumping by industries in the area and conservation measures including recycling of water used, the water levels have risen from 30 to 60 feet. These high water levels are now causing some problems with building foundations in the area.

SUMMARY

The water-supply situation for January continues to be excellent throughout the state despite the below normal precipitation in both December 1979 and January 1980. Reservoir storage, streamflow and ground-water levels remain markedly above normal throughout the state. Lake Erie mean level rose for the second consecutive month and remains markedly above normal.

NOTES AND COMMENTS

Precipitation data used in this report in addition to that collected by the Ohio Department of Natural Resources, Division of Water are furnished by the following organizations; U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service Flood Forecasting Centers at Cleveland Hopkins Airport, Charleston, West Virginia, Ann Arbor, Michigan, Pittsubrgh, Pennsylvania, and Louisville, Kentucky; the NOAA First Order Weather stations at Akron-Canton Airport, Cincinnati Airport at Covington, Kentucky, Columbus Airport, Dayton Airport, Toledo Airport and Youngstown Airport; the Agricultural Weather Center at Purdue University, West Lafayette, Indiana; the Miami Conservancy District at Dayton, Ohio; U.S. Army Corps of Engineers, Muskingum Area, Dover, Ohio and the Pittsburgh District, Pittsburgh, Pennsylvania; and numerous local National Weather Service observers who mail their records directly to a central collecting center at Asheville, North Carolina. These data are used for drawing the isohyetal map and in computing the regional averages published on the first page of this report. Percent-of-normal data are based on normals for Climatic Divisions as published by the U.S. Department of Commerce in their publication, *Climatography of the United States No 85 (by state), Monthly Averages of Temperature and Precipitation for State Climatic Division 1941-70.*

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

JANUARY 1980

monthly water inventory report for ohio

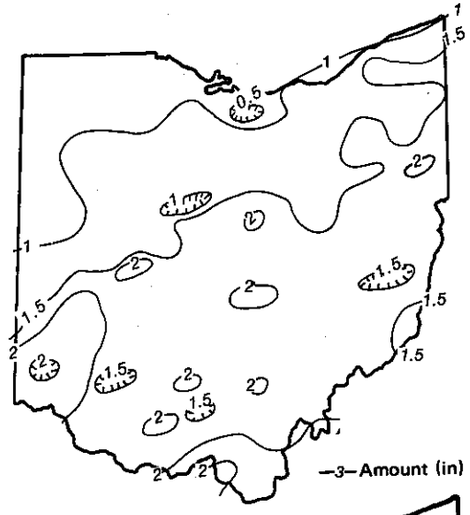
Compiled by Leonard J. Harstine

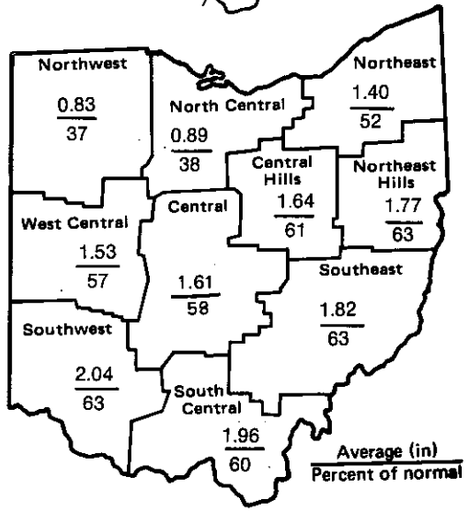
PRECIPITATION

PRECIPITATION for January was below normal throughout the state for the second consecutive month. The average for the state as a whole was 1.55 inches, 1.21 inches below normal. Regional averages ranged from 2.04 inches, 1.19 inches below normal, for the Southwest region to 0.83 inch, 1.40 inches below normal, for the Northwest region. Departures from normal ranged from 1.43 inches below normal, for the North Central region to 1.03 inches below normal, for both the Central Hills and the Northeast Hills regions. Kings Mills, Warren County, reported the greatest amount of precipitation, 2.62 inches, for the month and Norwalk, Huron County, reported the least amount, 0.38 inch.

There were measurable amounts of precipitation in most areas of the state during every week of the month. The bulk of the precipitation came in the form of snow. Snow amounts were generally much below normal, with Chardon, Geauga County, reporting only 11.1 inches, less than half that normally observed. The greatest amount of snow fall was in the southwest region and along the Ohio River in the South Central region. There was no appreciable accumulation of snow on the ground during the month. This has been a welcome contrast to the BLIZZARD of January 26, 1978.

Cumulative precipitation for the 1980 water year thus far fell below normal for the first time for most of the state; the only exceptions were in the Northwest, West Central and Southwest region, where precipitation for the water year is slightly above normal. The average for the first four months for the state as a whole was 9.71 inches, 0.55 inch below normal. Regional averages ranged from 11.28 inches, 0.08 inch above normal, for the Southwest region to 8.79 inches, 1.05 inches below normal, for the Central Hills region. Departures from normal ranged from 0.20 inch above normal, for the West Central region to 1.55 inches below normal, for the Northeast Hills region. The below normal precipitation during the past two months has had no detrimental affects on the water supply situation; in fact, it has helped to alleviate for the present the chances for serious flooding.

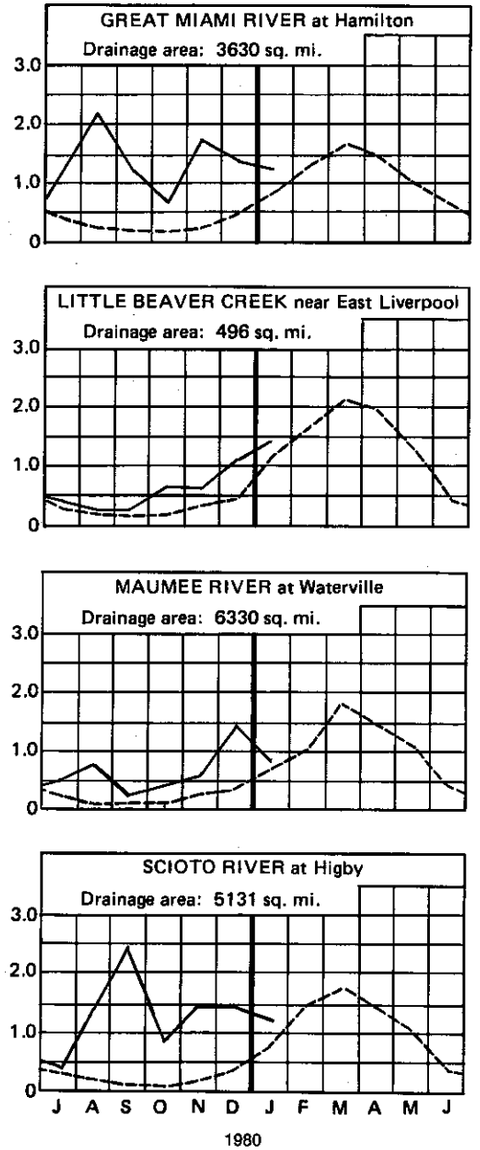




DIVISION OF WATER

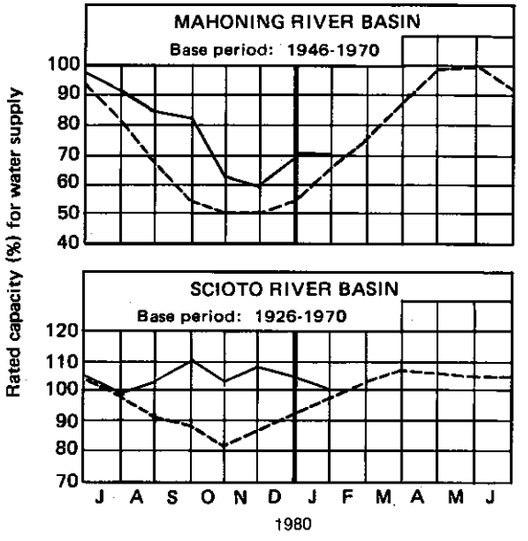
John H. Cousins, Chief

MEAN STREAM DISCHARGE



Base period for all streams: 1941-1970

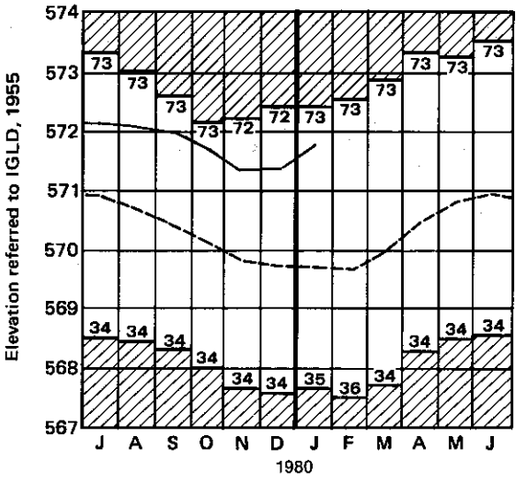
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply for January continued to be very satisfactory throughout the state. Storage in both the Mahoning River and the Scioto River basins remained rather stable throughout the month despite the below normal precipitation and continued to be noticeably above normal at the month end. Reservoir storage at the month end for the Mahoning basin index reservoirs was 70 percent of rated capacity for water supply compared to the same for last month and 65 percent for January 1979. Storage at the month end for the Scioto basin index reservoirs was 100 percent of rated capacity for water supply compared to 104 percent for last month and 90 percent for January 1979.

STREAMFLOW for January was normal throughout the state. Mean discharge and percent of normal for January for the index gaging stations were as follows: Great Miami River, 4,567 cfs, 157 percent; Little Beaver Creek, 701 cfs, 125 percent; Maumee River, 5,310 cfs, 120 percent; Scioto River, 6,589 cfs, 174 percent. The below normal precipitation this month has helped to reduce the immediate threat of floods which had existed due to the fact that streams were full and the soil moisture zone was full to capacity.

LAKE ERIE LEVELS



Base period: 1900-1974

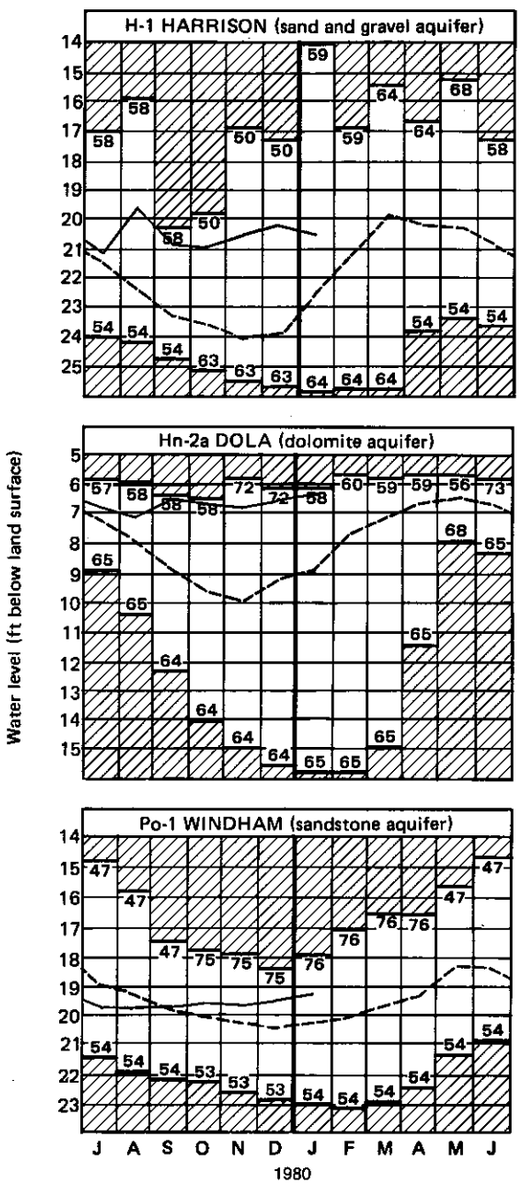
LAKE ERIE mean level showed a significant rise for the second consecutive month when normally it continues its seasonal declines through February. The mean level for January was 571.76 feet above IGLD (1955), 0.31 foot above last month's mean level and 2.05 feet above normal. The lake level is 1.26 feet above the level observed for January 1979 and 3.16 feet above Low Water Datum.

GROUND-WATER LEVELS continue to be unusually high in most aquifers throughout the state. Ground-water levels for January showed slight rises in most areas of the state. These rises were not nearly so great as those usually observed due to the fact that water levels were generally much higher than normal at the beginning of the month. Despite the below normal precipitation, there was some recharge to ground-water from the surplus moisture in the soil moisture zone. Thus, the ground-water situation continues to be excellent throughout the state.

Ground-water levels in the index observation wells were generally higher than they were last month; the only exception was in observation well H-1 near Harrison, Hamilton County, where the water level was slightly lower. Generally, ground-water levels are from 0 to 4 feet above those levels observed in January 1979 and 1 to 4 feet above normal. The water level in observation well Fr-10 on the O.S.U. Farm, Franklin County, recorded a record high level for the fifth consecutive month for the period of record beginning in 1948. Observation well Hn-2a, at Dola, Hardin County, recorded a record high for the second consecutive

Continued on page 4

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964; Hn-2a, 1955-1973; Po-1, 1947-1964

normal ----- current ——

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U.S. Geological Survey, Water Resources Division.

Lake Erie level data:
U.S. Corps of Engineers, Detroit District.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water supply situation for the state as whole remains very good despite the lack of recharge during February. Precipitaiton was below normal for the third consecutive month. Reservoir storage, streamflow, and ground-water storage generally declined during the month but remained near or above normal. Lake Erie level showed a noticeable decline for February but remained markedly above normal.

NOTES AND COMMENTS

RESERVOIR STORAGE **data are collected from various cooperating agencies by the U.S. Geological Survey, Water Resources Division, and furnished by them for this report. Base data are the total acre-feet of water contained in several storage reservoirs in (1) the Mahoning River basin and (2) the Scioto River basin on the last day of each month. These data are shown graphically in this report in percent of rated storage for water supply. The rated capacities at the spillway level as used in this report represent 25 years of record for the Mahoning River basin index reservoirs and 45 years of record for the Scioto River basin index reservoirs.**

NEW PUBLICATIONS

The Division of Water announces the availability of three new county ground-water resources maps.

THE GROUND-WATER RESOURCES OF CHAMPAIGN COUNTY, by Katie Shafer Crowell.

THE GROUND-WATER RESOURCES OF STARK COUNTY, by Alfred C. Walker.

THE GROUND-WATER RESOURCES OF SUMMIT COUNTY, by James J. Schmidt.

In addition, ground-water resources maps are available for the following counties: Ashland, Ashtabula, Columbiana, Cuyahoga, Delaware, Geauga, Holmes, Lake, Mahoning, Medina, Portage, Trumbull, Union, and Wayne. The cost of each map is $2.50, plus tax and 10 percent for mailing and handling charges. Copies of each map may be purchased from the Publications Center, Department of Natural Resources, Building B, Fountain Square, Columbus, Ohio 43224. Make checks payable to the ODNR Publications.

DEPARTMENT OF NATURAL RESOURCES

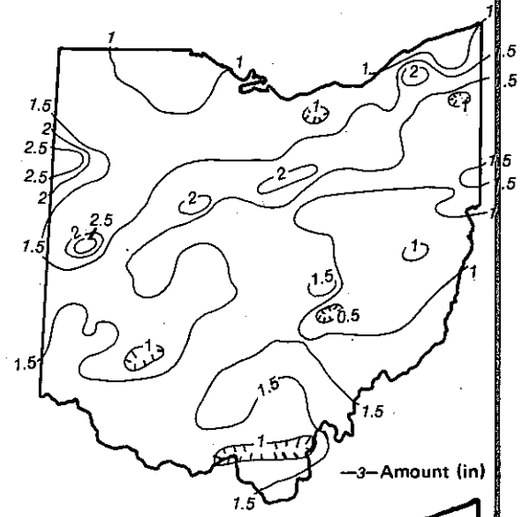
James A. Rhodes Governor *Robert W. Teater Director*

FEBRUARY 1980

monthly water inventory report for ohio

Compiled by Leonard J. Harstine

PRECIPITATION

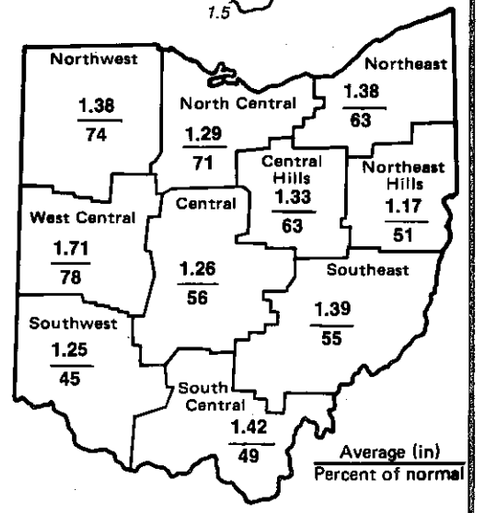


PRECIPITATION for February was below normal throughout the state for the third consecutive month. The average for the state as a whole was 1.36 inches, 0.93 inch below normal. Regional averages ranged from 1.71 inches, 0.47 inch below normal, for the West Central region to 1.17 inches, 1.13 inches below normal, for the Northeast Hills region. Departures from normal ranged from 1.55 inches below normal, for the Southwest region to 0.47 inch below normal, for the West Central region. Van Wert, Van Wert County, reported the greatest amount of precipitation, 2.96 inches, for the month and Roseville, Muskingum County, reported the least amount, 0.46 inch.

There were measurable amounts of precipitation, mostly in the form of snow, throughout the state during every week of the month. The southern portion of the state experienced unusually great amounts of snowfall during the last two days of the month; however, this snow was very low in water equivalent. Snowfall in the northeastern portion of the state was about normal; Chardon reported 18 inches for the month. There was very little snow on the ground for most of the state except for the last few days of the month.

Precipitation for the first two months of the 1980 calendar year was noticeably below normal throughout the state. The average for the state as a whole was 2.91 inches, 2.14 inches below normal. Regional averages ranged from 3.38 inches, 2.78 inches below normal, for the South Central region to 2.18 inches, 1.98 inches below normal, for the North Central region.

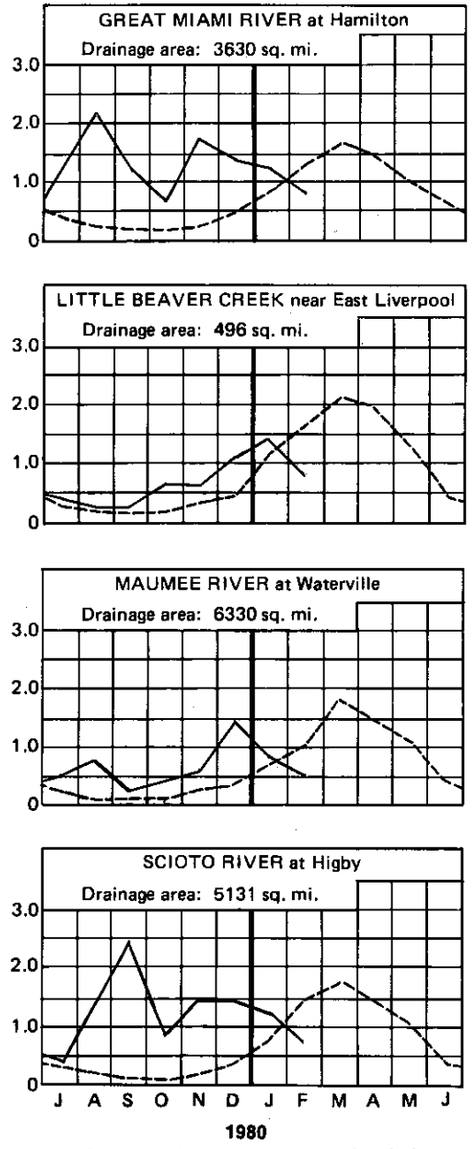
Cumulative precipitation for the first five months of the 1980 water year averaged 11.07 inches, 1.48 inches below normal. Regional averages range from 12.53 inches, 1.47 inches below normal, for the Southwest region to 10.07 inches, 2.68 inches below normal, for the Northeast Hills region. Departures from normal range from 2.85 inches below normal, for the South Central region to 0.27 inch below normal, for the West Central region. Precipitation for the state as a whole has been below normal in four of the first five months of this water year. Even so, it has not had any adverse effect on the water supply situation thus far. However, these deficiencies could become very noticeable during the remaining three months of the nominal recharge season.



DIVISION OF WATER

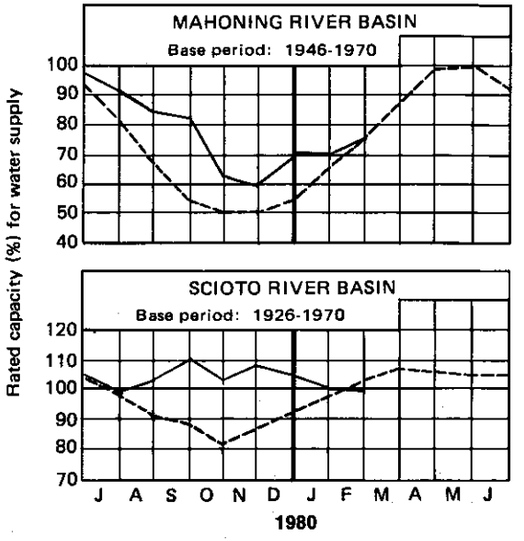
John H. Cousins, Chief

MEAN STREAM DISCHARGE



Base period for all streams: 1941-1970

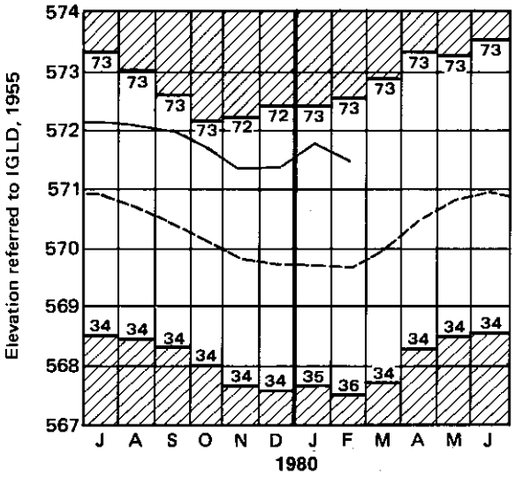
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply for February increased in the Mahoning River basin and decreased slightly in the Scioto River basin. Reservoir storage at the month end for the Mahoning basin index reservoirs was 75 percent of rated capacity for water supply compared to 70 percent for last month and 80 percent for February 1979. Reservoir storage at the month end for the Scioto basin index reservoirs was 99 percent of rated capacity for water supply compared to 100 percent for last month and 111 percent for February 1979.

STREAMFLOW for February was normal throughout most of the state; the only exception was in the Northeast Hills region where it was slightly deficient. Flows at the key index gaging stations were generally near deficient during the first three weeks of the month. Mean discharge and percent of normal for February for the index gaging stations were as follows: Great Miami River, 3,101 cfs, 64 percent; Little Beaver Creek, 417 cfs, 50 percent; Maumee River, 3,371 cfs, 51 percent; Scioto River, 3,583 cfs, 46 percent.

LAKE ERIE LEVELS

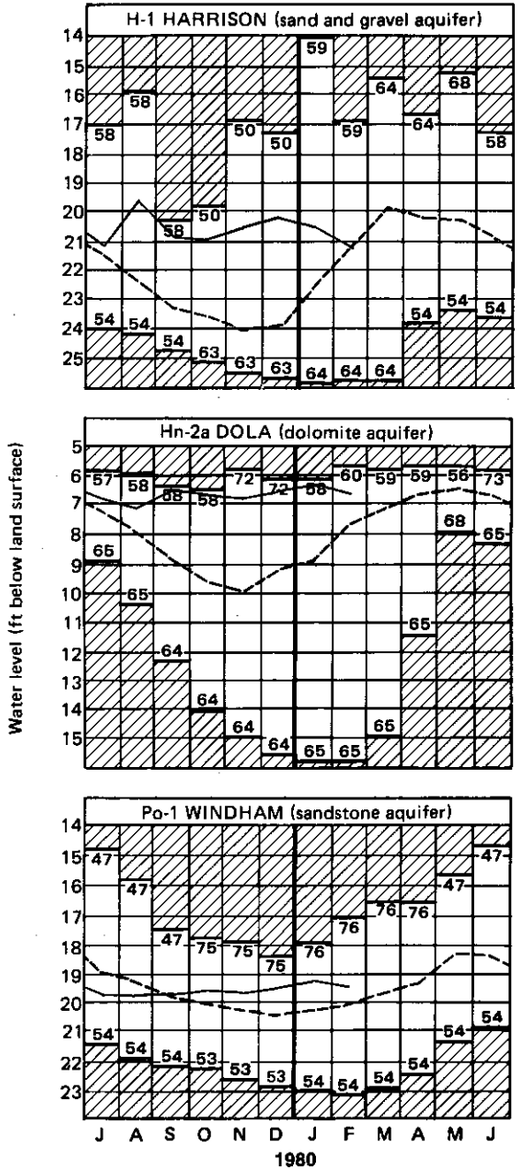


Base period: 1900-1974

LAKE ERIE mean level showed a noticeable decline for February. The mean level for February was 571.54 feet above IGLD (1955), 0.22 foot below last month's mean level and 1.85 feet above normal. The lake level is 1.13 feet above the level observed for February 1979 and 2.94 feet above Low Water Datum. This decline indicates that the lake level will probably not be nearly as high as previously expected.

GROUND-WATER LEVELS for February showed marked declines throughout the state in response to the below normal precipitation during the past two months. Generally the net declines in the key index wells were the greatest ever observed for February for most areas of the state. Recharge in February usually produces the second greatest amount of rise in water levels during the nominal recharge period. Despite the declines, ground-water levels throughout the state were generally above normal and above those levels observed for February 1979. The only exceptions were in wells representing sand and gravel aquifers adjacent to streams in which water levels fell below normal. The ground-water supply situation remains good despite the lack of recharge.

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964; Hn-2a, 1955-1973; Po-1, 1947-1964

normal ----- current ——

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U.S. Corps of Engineers, Detroit District.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

STREAMFLOW *continued*

Creek, 8.47 inches, 2.12 inches above normal; Maumee River, 7.25 inches, 1.82 inches above normal; Scioto River, 9.40 inches, 3.39 inches above normal. Runoff for the Great Miami River at Hamilton for the first six months already exceeds the average annual runoff by 0.50 inches.

SUMMARY

The water supply situation remains very favorable throughout the state. Precipitation for March was above normal throughout the state. Reservoir storage, streamflow and ground-water storage are generally at or above normal. Lake Erie mean level showed a slight rise in March and remained noticeably above normal.

NOTES AND COMMENTS

STREAMFLOW data are furnished by the U.S. Geological Survey, Water Resources Division, Columbus, Ohio. These data are for the following four key stream gaging stations: (1) the Great Miami River at Hamilton, (2) the Little Beaver Creek near East Liverpool, (3) the Maumee River at Waterville, (4) the Scioto River at Higby. Mean discharge and percent of normal at the index gaging stations are reported on a monthly basis in the text of this report. Discharge in cubic feet per second per square mile of drainage area above each index gaging station is presented in graphical form in this report. Normals as used in this report are based on the median for the reference period 1941-70. More detailed data on streamflow records throughout the state can be obtained by contacting the U.S. Geological Survey, Water Resources Division, 975 West Third Avenue, Columbus, Ohio 43212. (Phone 614-469-5553)

NEW PUBLICATION

The Division of Water announces the availability of the publication of Ohio Water Inventory Report No. 25, **TREATED MUNICIPAL EFFLUENT AS A SOURCE OF IRRIGATION WATER**, compiled by Daniel F. Bowell. The inventory provides in one document a listing of the seasonal volumes and chemical properties of the municipal waste effluent from 117 major cities in Ohio. The effluent has value which may be of use for irrigation or other purposes. The content of the report complements other information which is available from the Ohio Agriculture Research and Development Center, Ohio Environmental Protection Agency, and the Ohio Department of Natural Resources. The publication may be ordered from Publications Center, Ohio Department of Natural Resources, Building B, Fountain Square, Columbus, Ohio 43224 at a cost of $2.50 plus 10 cents tax and 25 cents mailing cost. Make checks payable to the ODNR Publications.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

MARCH 1980

monthly water inventory report for ohio

Compiled by Leonard J. Harstine

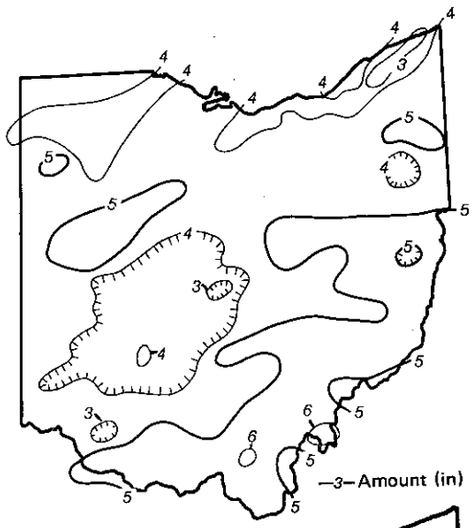
PRECIPITATION

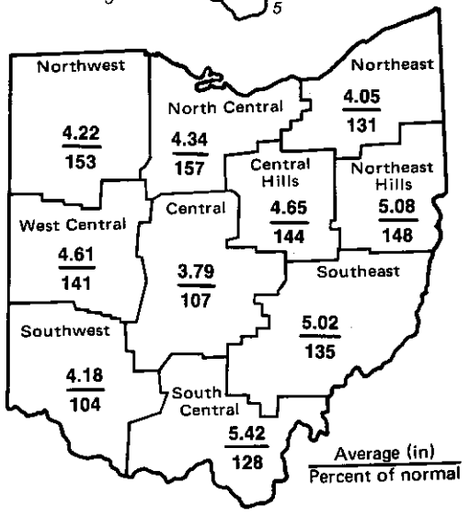
PRECIPITATION for March was above normal throughout the state. The average for the state as a whole was 4.54 inches, 1.13 inches above normal. Regional averages ranged from 5.42 inches, 1.19 inches above normal, for the South Central region to 3.79 inches, 0.26 inch above normal, for the Central region. Precipitation for the Northeast Hills region was 1.65 inches, which is above normal, the greatest deviation from a regional norm. South Webster, Scioto County, reported the greatest amount of precipitation, 6.18 inches, for the month and Ashtabula, Ashtabula County, reported the least amount, 2.39 inches.

There were substantial amounts of precipitation during every week of the month throughout most of the state. Precipitation was noticeably above normal in the northwestern portion of the state and in a wide belt along most of the Ohio River valley. In the northwestern portion of the state, which is known for poorly drained soils, the heavy amounts of rainfall produced excessive runoff due to the fact that the ground was saturated. In the Ohio River valley, runoff was excessive; however, distribution of the rainfall was such that streams were generally bank full and flood stages were reached, but not to the point of serious flooding. The excessive precipitation was most damaging to agriculture because fields were too wet for farmers to work and winter crops were damaged by water standing in the fields.

Precipitation for the first three months of the 1980 calendar year was below normal throughout the state. The average for the state as a whole was 7.45 inches, 1.01 inches below normal. Regional averages ranged from 8.80 inches, 1.59 inches below normal, for the South Central region to 6.26 inches, 0.59 inch below normal, for the Northwest region. Departures from normal ranged from 2.59 inches below normal for the Southwest region to 0.29 inch below normal for the West Central region.

Cumulative precipitation for the first six months of the 1980 water year is below normal throughout most of the state; the only exceptions are in the Northwest, North Central and West Central regions where precipitation was above normal. The average for the state as a whole was 15.61 inches, 0.35 inch below normal. Regional averages ranged from 16.62 inches, 1.66 inches below normal, for the South Central region to 14.68 inches, 0.86 inch above normal, for the North Central region. The water supply situation remains very satisfactory throughout the state despite the deficiencies in precipitation during the nominal recharge period.

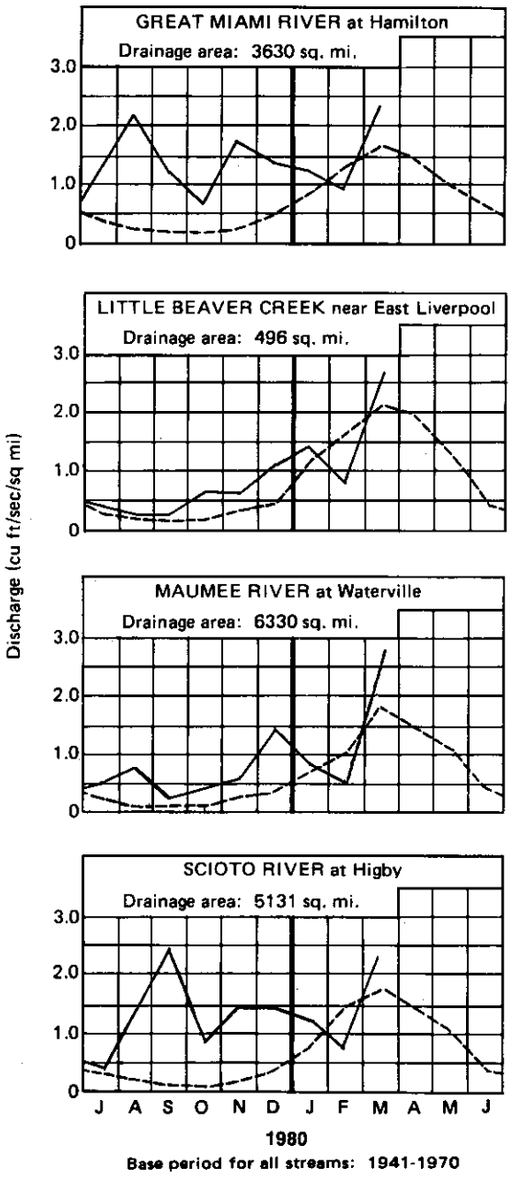




DIVISION OF WATER

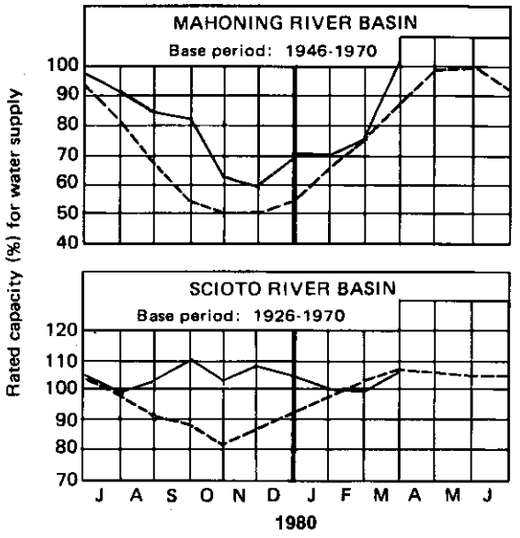
John H. Cousins, Chief

MEAN STREAM DISCHARGE



Base period for all streams: 1941-1970

RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply for March increased markedly and remained noticeably above normal in the Mahoning River basin, while in the Scioto River basin there was only a slight increase and storage remained below normal for the second consecutive month. The above normal precipitation for March was significant in maintaining reservoir storage at near normal levels throughout most of the state. Reservoir storage at the month end for the Mahoning basin index reservoirs was 102 percent of rated capacity for water supply compared to 75 percent for last month and 93 percent for March 1979. Reservoir storage at the month end for the Scioto basin index reservoirs was 106 percent of rated capacity for water supply compared to 99 percent for last month and 111 percent for March 1979.

STREAMFLOW for March was above normal throughout most of the state; in the northwest and southwest it was excessive. Considerable flooding occurred in the western and northwestern portion of the state as a result of the excessive precipitation during the last 15 days of the month. No serious damage was reported as a result of the flooding. Mean discharge and percent of normal for March for the index gaging stations were as follows: Great Miami River, 9,705 cfs, 159 percent; Little Beaver Creek, 1,340 cfs, 132 percent; Maumee River, 18,090 cfs, 159 percent; Scioto River, 11,540 cfs, 129 percent. Cumulative runoff and departures from normal at the index gaging stations for the first six months of the 1980 water year were as follows: Great Miami River, 9.97 inches, 4.71 inches above normal; Little Beaver

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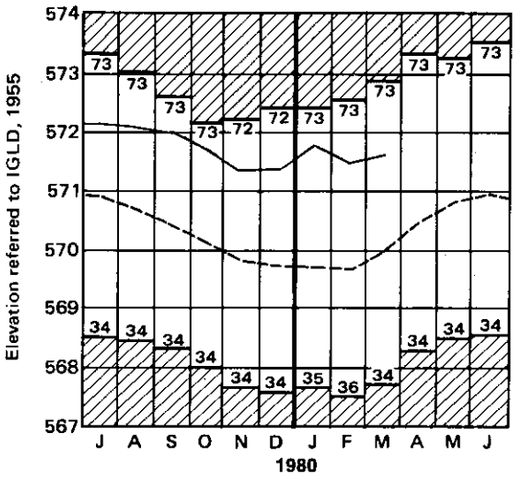
LAKE ERIE LEVELS

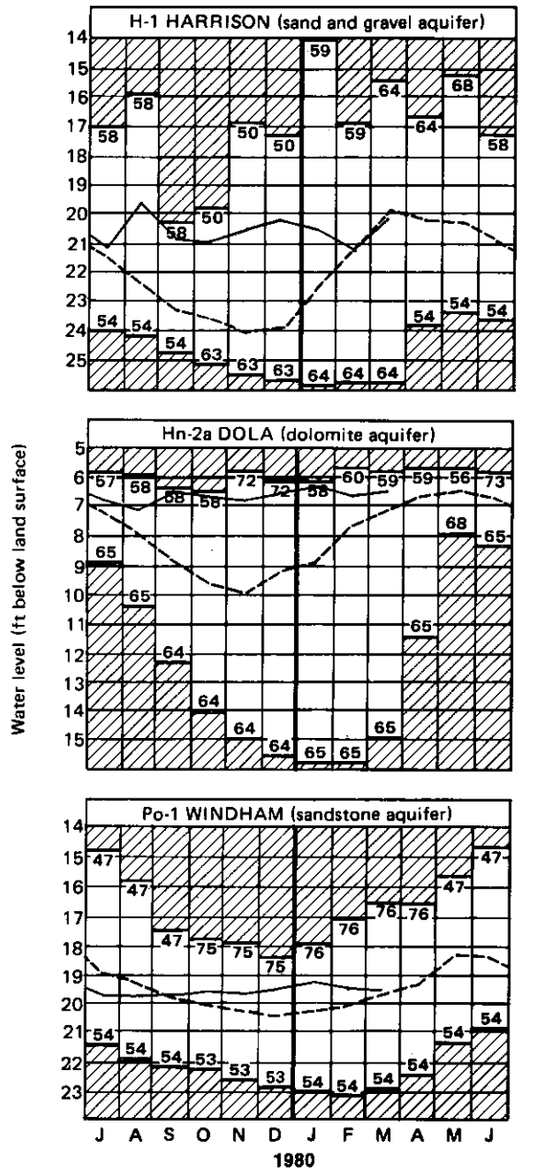


Base period: 1900-1974

LAKE ERIE mean level showed a slight rise for March following a noticeable decline in February. The mean level for March was 571.69 feet above IGLD (1955), 0.15 foot above last month's mean level and 1.77 feet above normal. The lake level is 0.76 foot below the level observed for March 1979 and 3.09 feet above Low Water Datum.

GROUND-WATER LEVELS for March showed significant rises throughout the state in response to the above normal precipitation following sharp declines in February. Net rises were generally about half that normally observed for March. Water levels in the key index wells were generally from 0 to 1 foot higher than those levels observed for February; the only exceptions were in wells representing consolidated rock aquifers where the recharge effect is normally delayed due to the rate of and distance the recharge must travel to replenish the aquifer. Ground-water levels range from 2 feet above to 2 feet below those levels observed for March 1979. Water levels in consolidated rock aquifers are generally below normal while water levels in unconsolidated sand and gravel aquifers are above normal. The ground-water supply situation remains favorable throughout the state and recharge conditions at the month end augur well for continued improvements during the remaining two months of the nominal recharge period.

GROUND-WATER LEVELS



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normal ----- current ——

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U.S. Geological Survey, Water Resources Division.

Lake Erie level data:
U.S. Corps of Engineers, Detroit District.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation for April remains very favorable for the state as a whole despite the fact that precipitation for the month was below normal throughout the state. Reservoir storage, streamflow and ground-water storage continued to be near normal. Lake Erie mean level showed a marked rise for April and was the highest observed monthly mean level since August 1976.

NOTES AND COMMENTS

LAKE ERIE LEVEL data are furnished by the U.S. Corps of Engineers, Detroit District, Detroit, Michigan. Data shown graphically in this report are mean monthly lake levels referenced to the International Great Lakes Datum (1955). Elevations are in feet above mean water level in the Gulf of St. Lawrence at Father Point, Quebec. Maximum, Minimums, and normals as used in this report are for the period of record from 1900 to 1974. Lake Survey chart depth and federal navigation improvement depths for Lake Erie are referred to the Lake Erie Low Water Datum plane, which is 568.60 feet above IGLD (1955).

NEW PUBLICATIONS

The Division of Water announces the availability of the following new publications.

THE GROUND-WATER RESOURCES OF MARION COUNTY, by Katie Shafer Crowell.

THE GROUND-WATER RESOURCES OF RICHLAND COUNTY, by James J. Schmidt.

These maps are two of a series of 19 county maps designed as a guide to locating new ground-water supplies or as an aid for expanding supplies already established. They will be useful to homeowners, developers, and planners. The maps are available for $2.50 a copy plus 10 cents tax and 25 cents mailing charges.

TREATED MUNICIPAL EFFLUENT AS A SOURCE OF IRRIGATION WATER, Ohio Water Inventory Report No. 25, compiled by Daniel F. Bowell.

The inventory provides in one document a listing of the seasonal volumes and chemical properties of the municipal waste effluent from 117 major cities in Ohio. The effluent has value which may be of use for irrigation or other purposes. The content of the report complements other information which is available from the Ohio Agriculture Research and Development Center, Ohio Environmental Protection Agency, and the Department of Natural Resources. This publication is available for $2.50 plus 10 cents tax and 25 cents mailing charges.

Publications may be ordered from the Publication Center, Ohio Department of Natural Resources, Fountain Square, Building B, Columbus, Ohio 43224. Make all checks payable to ODNR Publications.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

APRIL 1980

monthly water inventory report for ohio

Compiled by Leonard J. Harstine

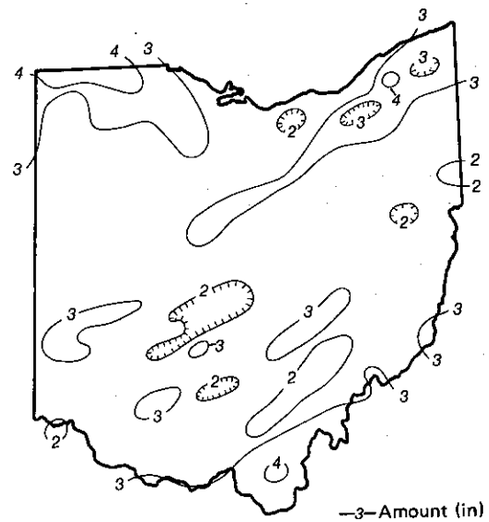
PRECIPITATION

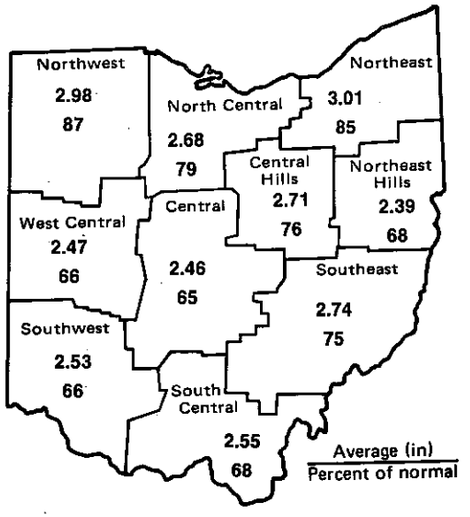
PRECIPITATION for April was below normal throughout the state. The average for the state as a whole was 2.65 inches, 0.97 inch below normal. Regional averages ranged from 3.01 inches, 0.55 inch below normal, for the Northeast region to 2.39 inches, 1.10 inches below normal, for the Northeast Hills region. Departures from normal ranged from 1.33 inches below normal for the Central region to 0.43 inch below normal, for the Northwest region. Chardon, Geauga County, reported the greatest amount of precipitation, 4.40 inches, for the month and Derby, Pickaway County, reported the least amount, 1.31 inches.

The bulk of the month's precipitation occurred during the first 15 days of the month; the only exceptions were in the extreme northern and southern portions of the state which received a substantial amount of rain during the last week of the month. The dry weather during the last two weeks was a welcomed relief to farmers who until then had had only about 1 day a week which was suitable for field work.

Precipitation for the first four months of the 1980 calendar year was below normal throughout the state. The average for the state as a whole was 10.10 inches, 1.98 inches below normal. Regional averages ranged from 11.35 inches, 2.79 inches below normal, for the South Central region to 9.12 inches, 3.23 inches below normal, for the Central region. Departures from normal for the calendar year thus far ranged from 3.90 inches below normal for the Southwest region to 1.02 inches below normal for the Northwest region.

Cumulative precipitation for the 1980 water year (October 1979 to September 1980) thus far averages 18.26 inches, 1.32 inches below normal. Regional averages range from 19.24 inches for both the Northeast and the Southwest regions, 0.73 inch and 2.63 inches below normal respectively, to 16.89 inches, 2.51 inches below normal, for the Central region. Departures from normal for the water year thus far range from 2.86 inches below normal for the South Central region to 0.43 inch above normal for the Northwest region. There has been no significant detrimental effect to water supplies thus far because of the deficient precipitation during the current recharge season.

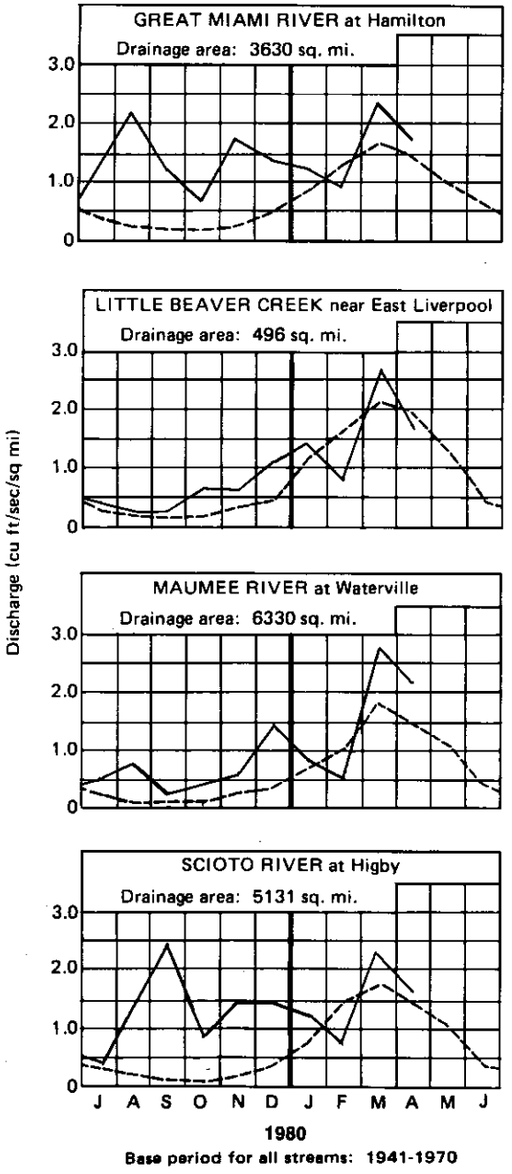




DIVISION OF WATER

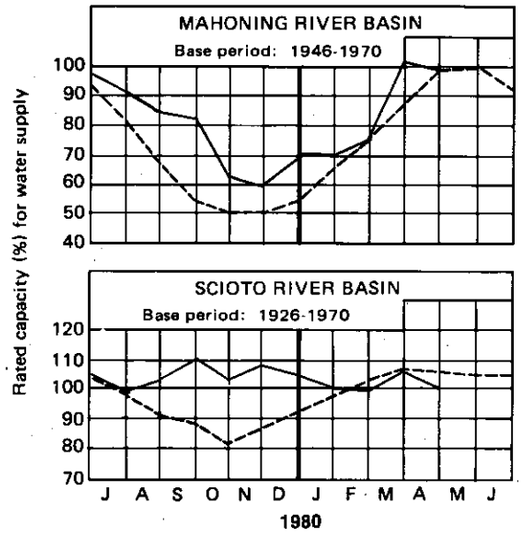
John H. Cousins, Chief

MEAN STREAM DISCHARGE



Base period for all streams: 1941-1970

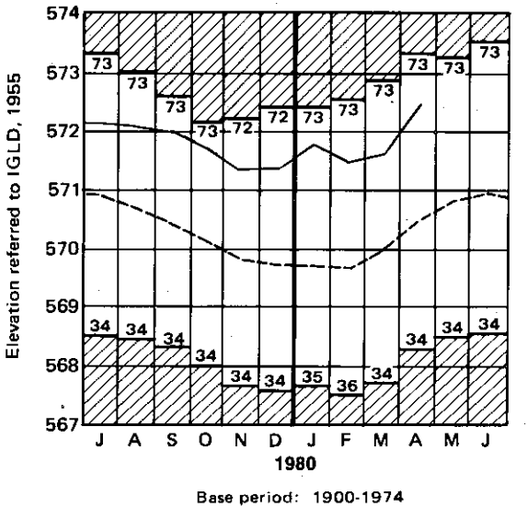
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply for April declined slightly but remained about normal throughout the state. Reservoir storage at the month end for the Mahoning basin index reservoirs was 98 percent of rated capacity for water supply compared to 102 percent for last month and 98 percent for April 1979. Storage at the month end for the Scioto basin index reservoirs was 100 percent of rated capacity for water supply compared to 106 percent for last month and 110 percent for April 1979.

STREAMFLOW for April was normal throughout most of the state; the only exception was in the northwestern portion of the state where it was excessive. Mean discharge and percent of normal for April for the index gaging stations were as follows: Great Miami River, 6,207 cfs, 120 percent; Little Beaver Creek, 843 cfs, 92 percent; Maumee River, 14,160 cfs, 156 percent; Scioto River, 8,687 cfs, 117 percent. Flows at the month end were reflecting the lack of rainfall and were noticeably low.

LAKE ERIE LEVELS

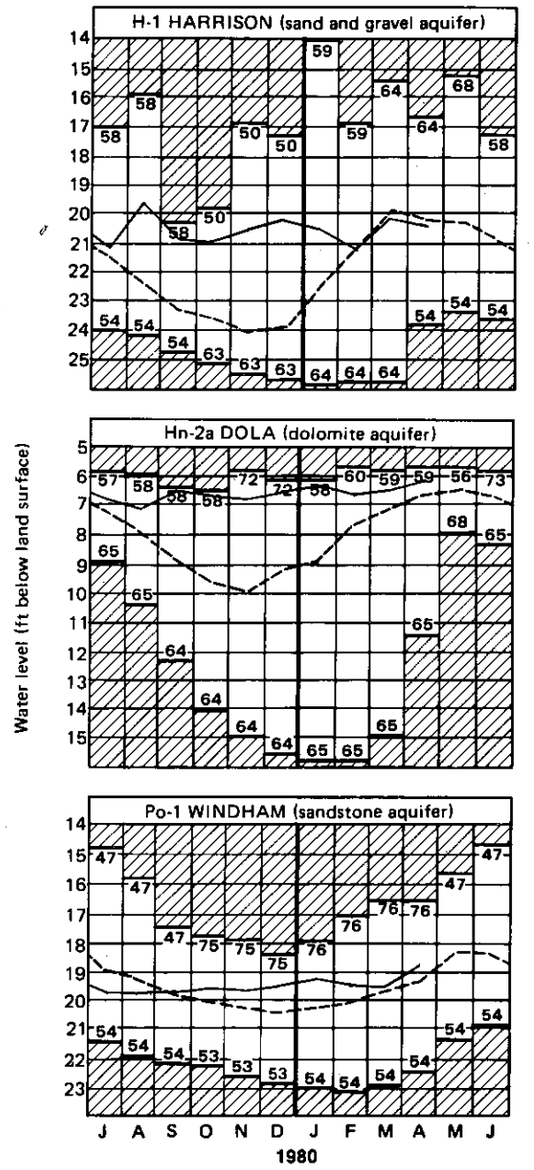


Base period: 1900-1974

LAKE ERIE mean level showed a significant rise for April and was the highest observed monthly mean level since August 1976. The mean level for April was 572.41 feet above IGLD (1955), 0.72 foot above last month's mean level and 1.93 feet above normal. The lake level is 0.62 foot above the level observed for April 1979 and 3.81 feet above Low Water Datum.

GROUND-WATER LEVELS for April, in general, remained rather stable during the month and showed net rises throughout most of the state. In the northeastern portion of the state, water levels in the consolidated rock aquifers rose in response to delayed recharge from precipitation during the past two months. In the southwest, however, water levels declined rapidly in wells representing the sand and gravel aquifers in response to the lack of precipitation during the last half of the month. Generally, water levels are above normal in those wells representing consolidated rock aquifers and below normal in those wells representing unconsolidated sand and gravel aquifers. The ground-water supply situation remains favorable throughout the state for what appears to be the end of the current recharge season.

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964; Hn-2a, 1955-1973; Po-1, 1947-1964

normal ----- current ——

ACKNOWLEDGMENTS

This report has been compiled from Division of Water data and from information supplied by the following:

Precipitation data:
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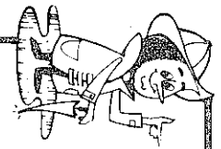

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation for May continues to be favorable throughout the state. Precipitation for the month was below normal for most of the state. Reservoir storage, streamflow, and ground-water levels are generally at or below normal. Lake Erie mean level rose only slightly and remains noticeably high.

NOTES AND COMMENTS

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ODNR WATER DEVELOPMENT PRIORITY PROGRAM PROGRESS

At McComb, in Hancock County, the eighth of 37 upground reservoirs recommended in the Northwest Ohio Water Development Plan was completed last fall and is now filled and in use. This 25 acre impoundment, which draws water from Rader Creek, holds 160 million gallons of water and is designed to accommodate McComb's anticipated water needs for several decades.

Other upground reservoirs in which the state has provided financial assistance are near Lima (Bresler Lake) in Allen County, Findlay in Hancock County, Killdeer in Wyandot County, New London in Huron County, Wellington in Lorain County, Willard in Huron County, and Beaver Creek in Seneca County which provides service to Clyde. Two other northwest Ohio communities have contracted for state assistance with upground reservoirs: Bucyrus in Crawford County and Delta in Fulton County.

In addition to providing water supply and potential for irrigation water and augmented stream flow, all of the impoundments are stocked with game fish by the Division of Wildlife and are open to public recreation.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

May 1980

monthly water inventory report for ohio

Compiled by Leonard J. Harstine

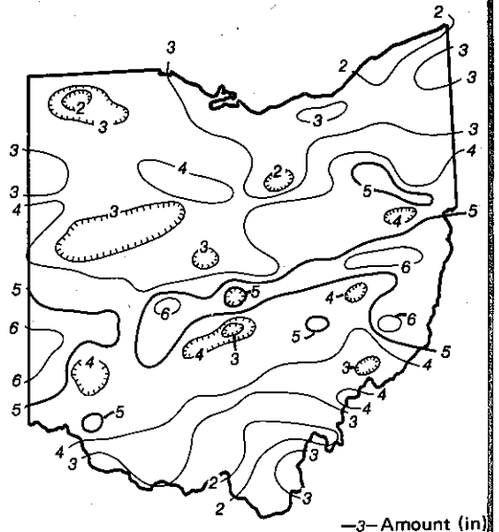
PRECIPITATION

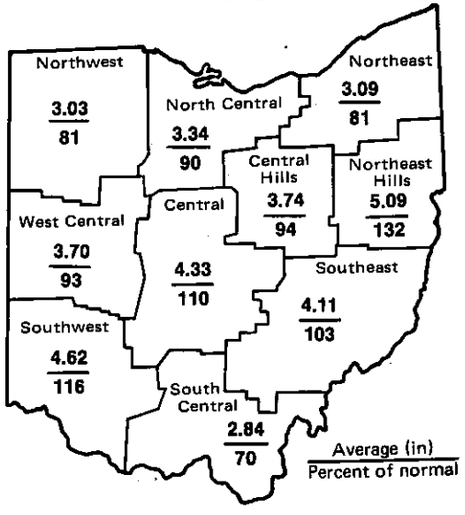
PRECIPITATION for May was below normal throughout most of the state; the only exceptions were in the Central, Northeast Hills and the Southwest regions where precipitation was above normal. The average for the state as a whole was 3.79 inches, 0.12 inch below normal. Regional averages ranged from 5.09 inches, 1.24 inches above normal, for the Northeast Hills region to 2.84 inches, 1.23 inches below normal, for the South Central region. Summerford, Madison County, reported the greatest amount of precipitation, 6.78 inches, for the month and Ashland, Ashland County, reported the least amount, 1.51 inches.

There were no measurable amounts of precipitation during the first 10 days of the month. The bulk of the month's precipitation fell between the 11th and the 25th. The greatest amount of precipitation for the month, between 4 and 6.78 inches, was received within a band approximately 50 miles wide from Hamilton through Columbus to East Liverpool. Areas in the northeast, west central and south central portions of the state received less than 2 inches. The heavy rains during the middle of the month produced some recharge to water supplies and was also a welcomed relief to agriculture.

Precipitation thus far for the 1980 calendar year continues to be below normal throughout the state. The average for the state as a whole was 13.89 inches, 2.10 inches below normal. Regional averages range from 15.50 inches, 0.37 inch below normal, for the Northeast Hills region to 12.27 inches, 1.73 inches below normal, for the Northwest region. The South Central region shows the greatest precipitation deficiency for the calendar year thus far, 4.02 inches below normal.

Cumulative precipitation for the 1980 water year (October 1979-September 1980) thus far averages 22.05 inches, 1.44 inches below normal. Regional averages range from 23.86 inches, 2.01 inches below normal, for the Southwest region to 20.70 inches, 0.22 inch below normal, for the North Central region. The greatest deviation from normal, however, is in the South Central region where the cumulative precipitation is 4.09 inches below normal. Despite the below normal precipitation during six of the first eight months of the current water year, the water supply situation around the state remains quite favorable.

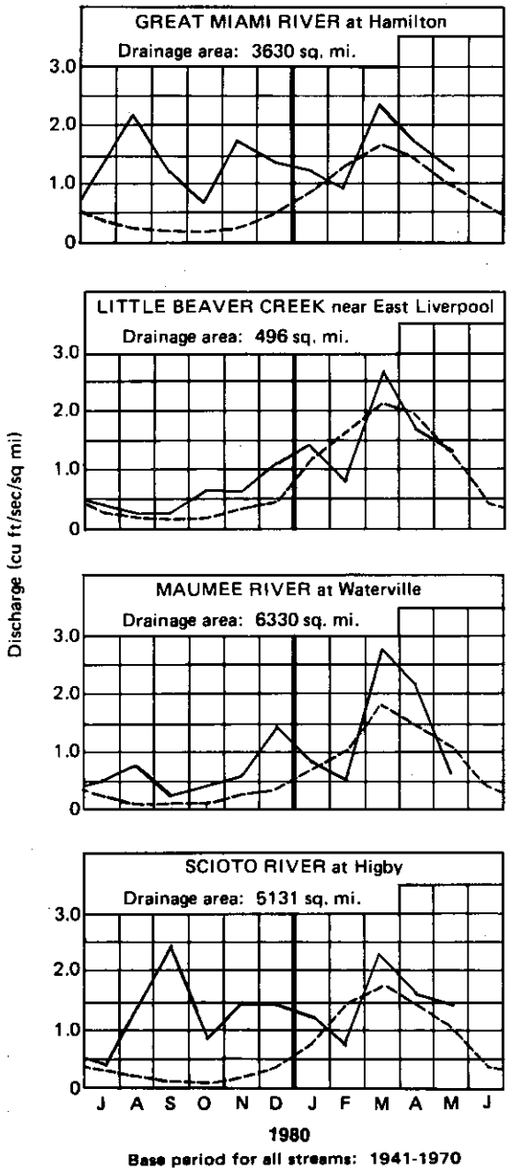




DIVISION OF WATER

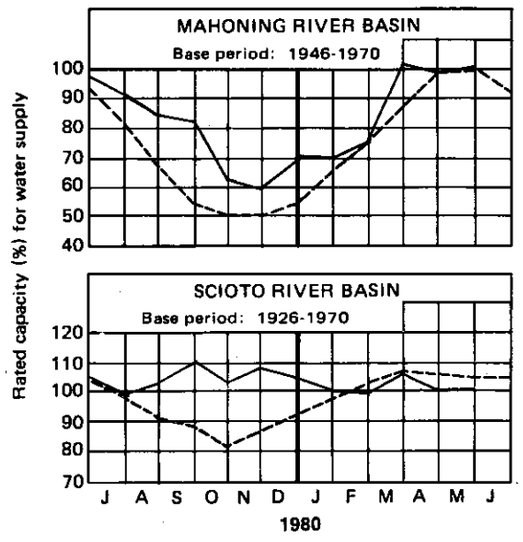
John H. Cousins, Chief

MEAN STREAM DISCHARGE



Base period for all streams: 1941-1970

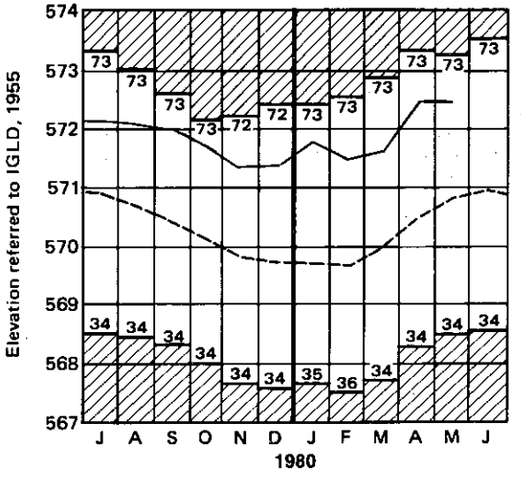
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply for May increased slightly in the Mahoning River basin index reservoirs and remained unchanged in the Scioto River basin index reservoirs. Storage at the month end for the Mahoning basin index reservoirs was 101 percent of rated capacity for water supply compared to 98 percent for last month and 101 percent for May 1979. Storage at the month end for the Scioto basin index reservoirs was 100 percent of rated capacity for water supply compared to the same for last month and 104 percent for May 1979. Reservoir storage for water supply remains normal in the Mahoning basin and is slightly below normal in the Scioto basin.

STREAMFLOW for May was normal throughout the state. It is significant to note that flows during the first ten days of the month were deficient throughout the state. Thus, the heavy rains during the last half of the month produced noticeable improvements to streamflow throughout the state. Mean discharge and percent of normal for May for the index gaging stations were as follows: Great Miami River, 4,697 cfs, 139 percent; Little Beaver Creek, 692 cfs, 111 percent; Maumee River, 3,832 cfs, 58 percent; Scioto River, 4,748 cfs, 84 percent.

LAKE ERIE LEVELS

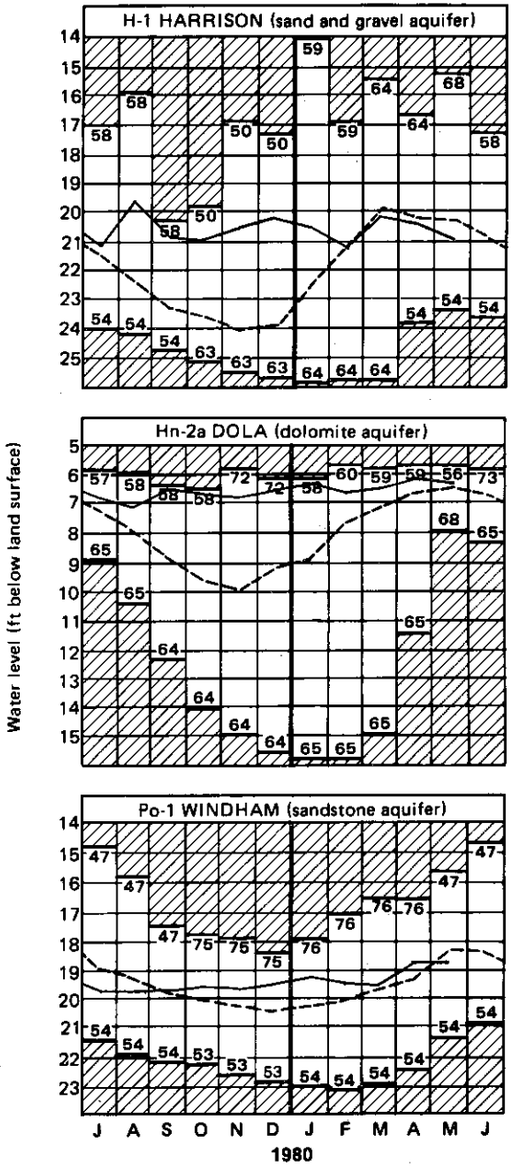


Base period: 1900-1974

LAKE ERIE mean level showed only a slight rise for May. The mean level for May was 572.47 feet above IGLD (1955), 0.06 foot above last month's mean level and 1.67 feet above normal. The lake level is 0.38 foot above the level observed for May 1979 and 3.87 feet above Low Water Datum. The lake level continues to be noticeably high and the mean levels for the past two months are the highest observed since August 1976.

GROUND-WATER LEVELS showed noticeable declines during the first half of the month and rose during the last half in response to the heavy precipitation. Water levels usually rise during the first half of May and decline during the last half. The net declines from last month's mean levels were greater than usually observed; the only exception was observation well Po-1 at Windham, Portage County, representing a consolidated rock aquifer, which remained the same as last month. Generally, water levels are nearly the same as those levels observed for May 1979 and in most cases they are below normal for the month. The only exception is observation well Fr-10 at OSU farms, Franklin County, where the water level has been noticeably above normal for the past two years. The ground-water supply situation remains favorable thus far for the 1980 water year.

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964; Hn-2a, 1955-1973; Po-1, 1947-1964

normal ----- current ——

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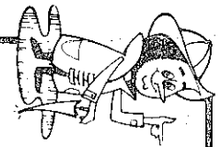

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

PRECIPITATION *continued*

inches above normal, for the West Central region to 24.92 inches, 0.30 inch above normal, for the North Central region. Generally, precipitation for the water year thus far is above normal in the northern portion of the state and below normal in the southern portion.

SUMMARY:

The water supply situation for June remains favorable throughout the state. Precipitation was noticeably above normal for most areas of the state. Reservoir storage and streamflow were above normal and ground-water storage was slightly below normal. Lake Erie mean level rose slightly and remains at a noticeably high level.

NOTES AND COMMENTS

GROUND-WATER LEVEL data are derived from 7 index wells selected from approximately 120 water level observation wells operated cooperatively by the Division of Water, Ohio Department of Natural Resources, and the Water Resources Division, U.S. Geological Survey, Columbus, Ohio. These key observation wells represent all types of aquifers common to Ohio. Water levels in these key wells change mainly in response to natural hydrologic factors affecting ground-water storage. These levels, therefore, reflect the relative natural storage of ground water and current replenishment or depletion. In this respect, these levels are considered to be typical of ground-water conditions in the state. Space does not allow presentation of the data for all 7 wells; data for key wells representing the three principal types of water-bearing formations are presented graphically in this report. However, the discussion of ground-water levels in this report is based on generalizations from the records for all 7 index wells. Basic data are the monthly averages of the lowest daily observed water levels in each observation well. Normals are averages for the base period of record.

KEY GROUND-WATER OBSERVATION WELLS

Index well	Location (county)	Depth (ft)	Aquifer	Base period
F-1	Fairfield	74	Sandstone	1947-64
Fa-1	Fayette	78	Limestone	1947-64
Fr-10	Franklin	75	Gravel	1947-64
H-1	Hamilton	124	Gravel	1951-64
Hn-2a	Hardin	51	Dolomite	1955-73
Po-1	Portage	55	Sandstone	1947-64
Tu-1	Tuscarawas	23	Gravel	1947-64

- Water years, both dates are inclusive.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

JUNE 1980

monthly water inventory report for ohio

Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for June was above normal throughout the state. The average for the state as a whole was 5.28 inches, 1.46 inches above normal. Regional averages ranged from 8.70 inches, 4.73 inches above normal, for the West Central region to 3.75 inches, 0.11 inch above normal, for the South Central region. Versailles, Darke County, reported the greatest amount of precipitation, 12.62 inches, for the month and Chesapeake, Lawrence County, reported the least amount, 1.95 inches.

There were measurable amounts of precipitation in most areas of the state during every week of the month. The bulk of the month's precipitation was produced by heavy, isolated local thunderstorms. There were many stations throughout the state which reported 5 inches or more for the month. There were two notable storm periods in June. The first passed through the central portion of the state from west to east on June 2, 3, and 4, which produced 4 to 5 inches in the west central section and 2 to 3 inches in the central and eastern sections. Considerable flooding was observed in both the Great Miami River and Scioto River basins during this period.

The other notable storm occurred on the night of June 28-29. The west central portion of the state experienced a very heavy thunderstorm which produced as much as 7.05 inches of precipitation during a 6 hour period at Versailles, Darke County. This storm produced extensive flooding in Swamp Creek and Indian Creek at Versailles and in the Stillwater River basin. The Miami Conservancy District reports that the high-water state for the Still water River at Pleasant Hill crested at 18.5 feet, which is the highest of record since the Conservancy District's initial flood control projects were completed in 1922.

Precipitation for the 1980 calendar year thus far remains below normal throughout most of the state; the only exceptions are in the West Central, Central Hills, and Northeast Hills regions where precipitation is above normal. The average for the state as a whole is 19.17 inches, 0.64 inch below normal. Regional averages ranged from 22.72 inches, 2.87 inches above normal, for the West Central region to 16.61 inches, 1.12 inches below normal, for the Northwest region.

Cumulative precipitation for the 1980 water year for the state as a whole averages 27.33 inches, 0.02 inch above normal. Regional averages ranged from 31.33 inches, 4.24

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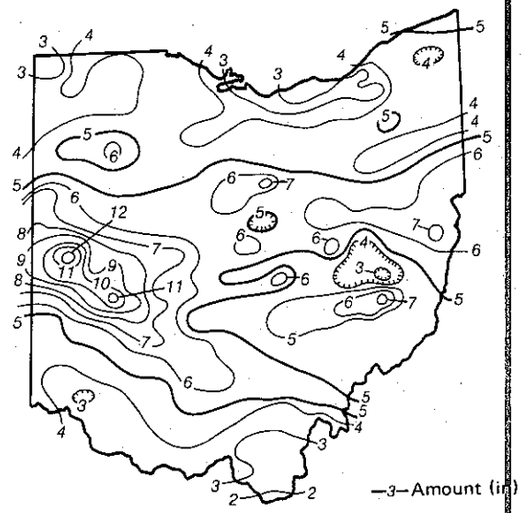
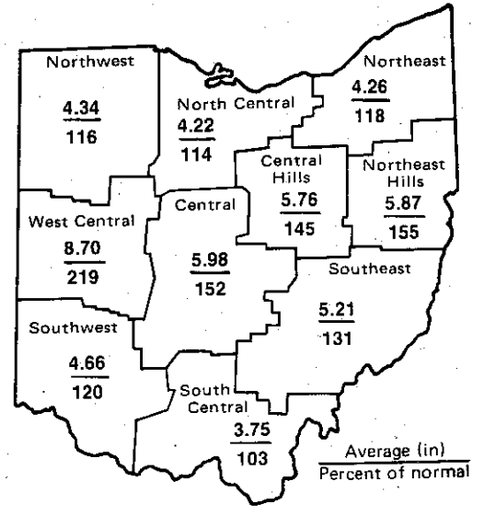
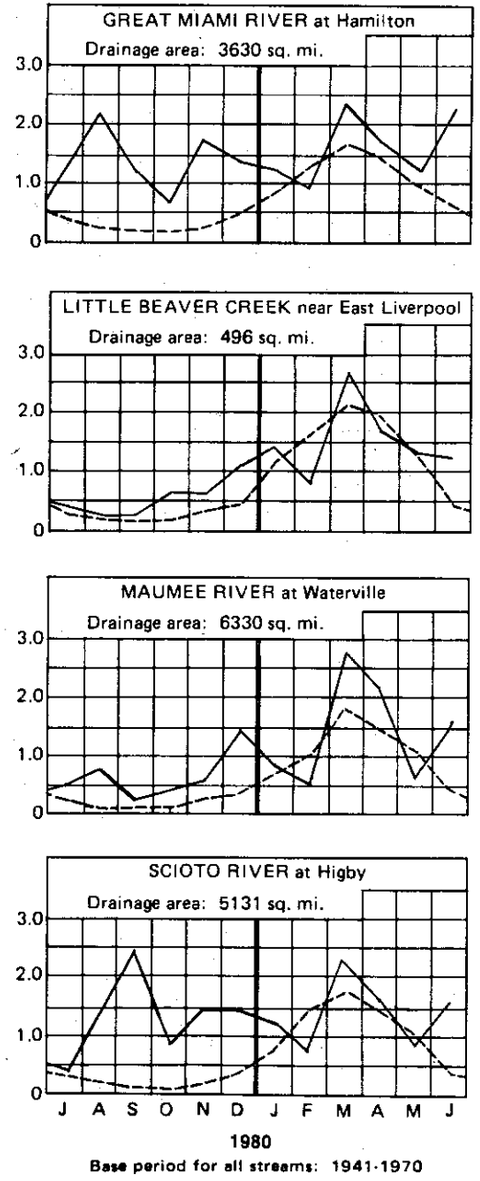




DIVISION OF WATER

John H. Cousins, Chief

MEAN STREAM DISCHARGE



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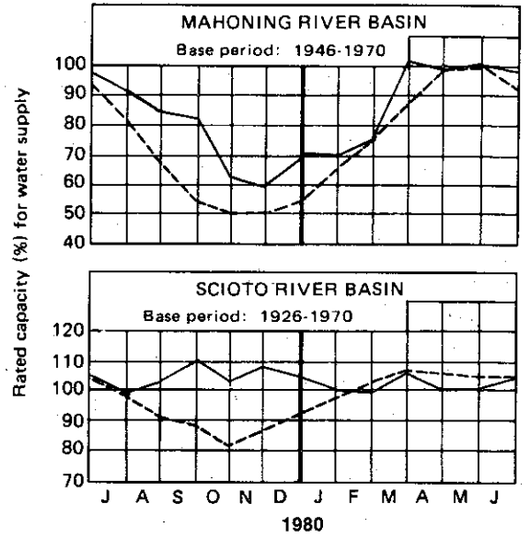

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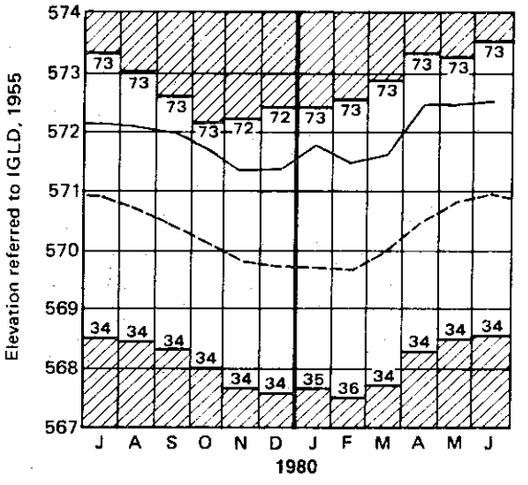
STREAMFLOW for June was above normal throughout the state in response to the above normal precipitation. Some flooding occurred in low lying areas in many sections of the state as a result of the heavy local thunderstorms. Extensive flooding was observed in the Scioto River basin during the first week of the month and in the Stillwater River basin during the last week of the month. Mean discharge and percent of normal for June for the index gaging stations were as follows: Great Miami River, 8,289 cfs, 381 percent; Little Beaver Creek, 640 cfs, 291 percent; Maumee River, 10,097 cfs, 385 percent; Scioto River, 7,958 cfs, 390 percent.

LAKE ERIE LEVELS

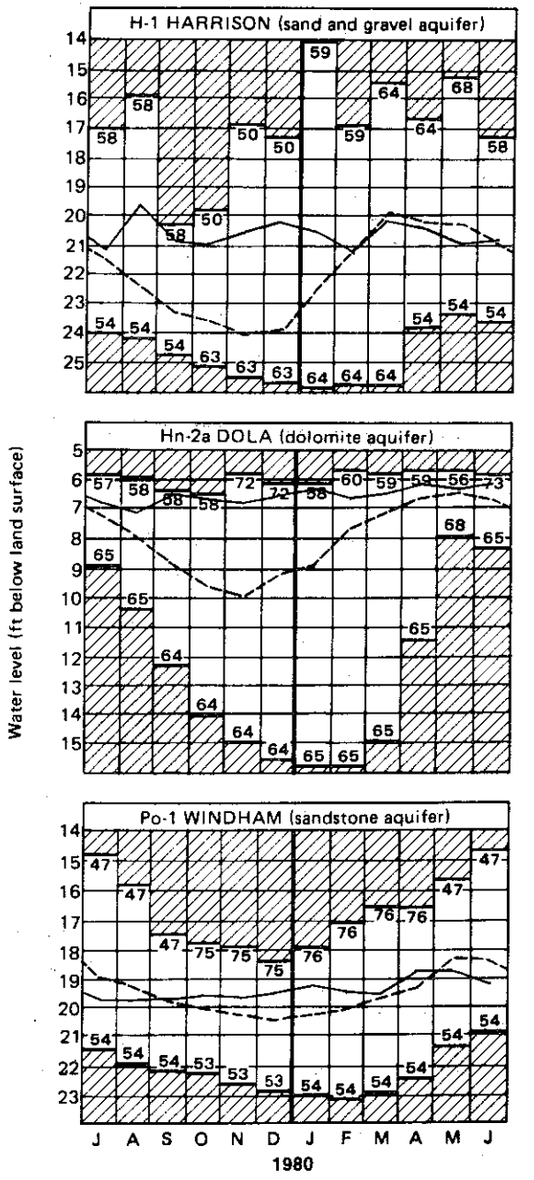


Base period: 1900-1974

LAKE ERIE mean level for June was 572.56 feet above IGLD (1955), 0.09 foot above last month's mean level and 1.62 feet above normal. The lake level is 0.37 foot above the level observed for June 1979 and 3.96 feet above Low Water Datum.

GROUND-WATER LEVELS remained rather stable for June in response to the above normal precipitation during the past two months. Usually ground-water levels have begun their seasonal declines in June. Water levels in the key index wells were slightly higher than last month in most areas of the state; the only exception was in observation well Po-1 at Windham, Portage County, where the water level declined and was slightly below normal. Ground-water levels are generally above those levels observed for June 1979 but remained below normal in most areas of the state. The ground-water storage situation continues to be favorable thus far in the current water year.

GROUND-WATER LEVELS



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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water supply situation continues to remain favorable throughout the state. Precipitation for July was noticeably above normal. Reservoir storage, streamflow and groundwater storage are generally above normal throughout the state. Lake Erie level declined slightly and continues to be markedly high.

NOTES AND COMMENTS

NEW PUBLICAITON

The Division of Water announces the availability of the publication of Ohio Water Inventory Report No. 26, **INVENTORY OF OHIO'S LAKES**, compiled by Daniel F. Bowell. The publication lists by county all of Ohio's water impoundments that are five acres or greater in size and provides information on ownership and uses. Maps for each county showing the location of the listed impoundments are included. The report will be of service to water managers, sportsmen, and recreation-oriented citizens. It will also serve as the initial step in qualifying Ohio for Federal assistance for restoration of publically owned lakes as provided by Section 314 of P.L. 95-217 of the Clean Water Act. The publication may be ordered from the Publications Center, Ohio Department of Natural Resources, Building B, Fountain Square, Columbus, Ohio 43224 at a cost of $2.50 plus 10 cents tax and 25 cents for handling cost. Make checks payable to the ODNR Publications.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

JULY 1980

monthly water inventory report for ohio

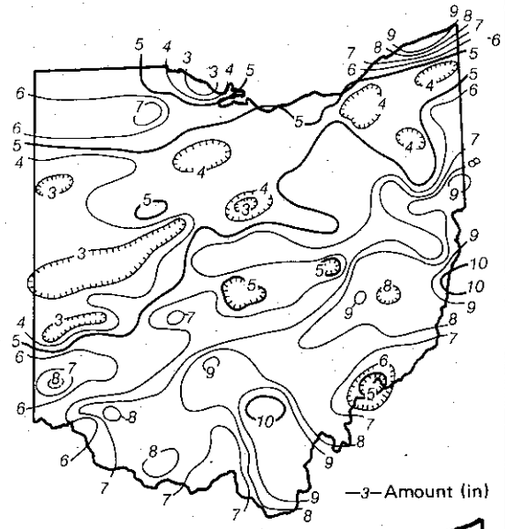
Compiled by Leonard J. Harstine

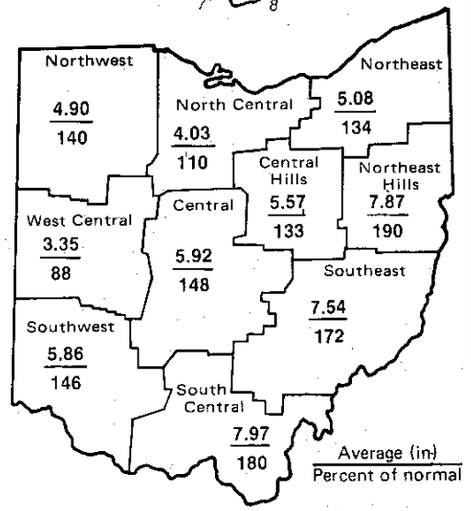
PRECIPITATION

PRECIPITATION for July was noticeably above normal throughout most of the state; the only exception was in the West Central region, where precipitation was below normal. The average for the state as a whole was 5.80 inches, 1.82 inches above normal. Regional averages ranged from 7.97 inches, 3.54 inches above normal, for the South Central region to 3.35 inches, 0.46 inch below normal, for the West Central region. McArthur, Vinton County, reported the greatest amount of precipitation, 11.17 inches, for the month and Versailles, Darke County, reported the least amount, 2.03 inches. Nearly three-fourths of the state received more than 5 inches of precipitation for the month; many stations reported more than 8 inches.

There were sizable amounts of precipitation in most areas of the state during every week of the month. The bulk of the month's precipitation was produced by very heavy, isolated local thunderstorms. There were two notable storm periods in July which extended throughout most of the state. The first occurred on the 8th and 9th and was heaviest in the southwestern portion of the state. Marathon, Clermont County, reported 5.75 inches in six hours on the morning of the 9th. The second occurred on the 21st and 22nd producing significant amounts of precipitation in many areas of the state.

Cumulative precipitation for the first seven months of the 1980 calendar year was above normal for the state as a whole for the first time this year. The average for the state is 24.97 inches, 1.18 inches above normal. Regional averages range from 29.24 inches, 5.43 inches above normal, for the Northeast Hills region to 20.79 inches, 0.59 inch below normal, for the North Central region. Cumulative precipitation for the 1980 water year is also above normal for the state as a whole; the only exception is the South Central region where it is below normal. The average for the state is 33.13 inches, 1.84 inches above normal. Regional averages range from 36.53 inches, 3.93 inches above normal, for the Southeast region to 28.95 inches, 0.68 inch above normal, for the North Central region.

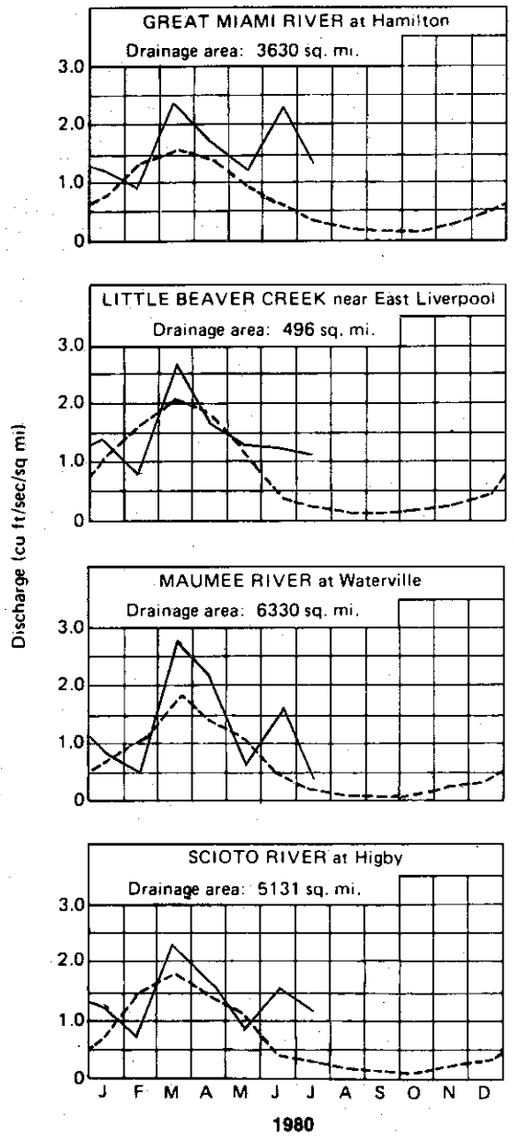




DIVISION OF WATER

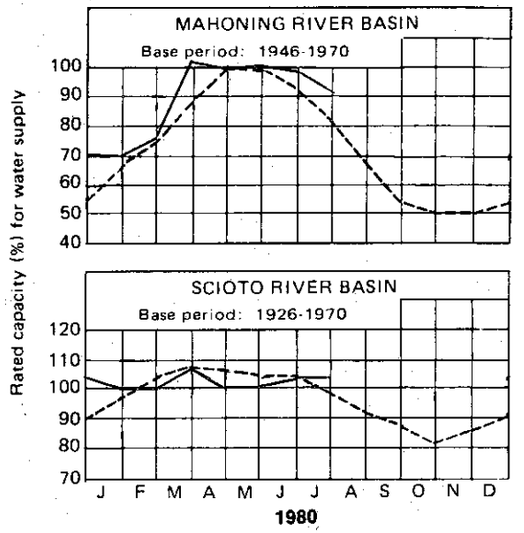
John H. Cousins, Chief

MEAN STREAM DISCHARGE



Base period for all streams: 1941-1970

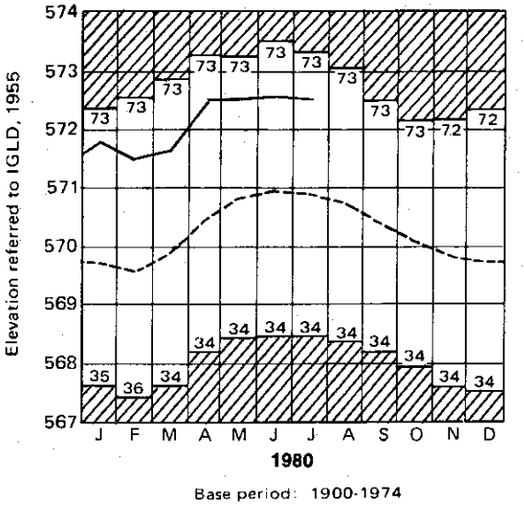
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply for July declined slightly in the Mahoning River basin index reservoirs and remained the same as last month in the Scioto River basin index reservoirs. Storage in both basins remained above normal. Reservoir storage at the month end for the Mahoning basin index reservoirs was 92 percent of rated capacity for water supply compared to 98 percent for last month and 91 percent for July 1979. Reservoir storage at the month end for the Scioto basin index reservoirs was 105 percent of rated capacity for water supply compared to the same for last month and 91 percent for July 1979.

STREAMFLOW for July was excessive throughout the state. Although there was considerable flooding in low lying areas during the occurrences of heavy local thunderstorms, no serious flooding was reported. Mean discharge and percent of normal for July for the index gaging stations were as follows: Great Miami River, 4,615 cfs, 344 percent; Little Beaver Creek, 534 cfs, 468 percent; Maumee River, 2,898 cfs, 216 percent; Scioto River, 6,034 cfs, 382 percent. Flows throughout the state at the month end continued to be at or above normal.

LAKE ERIE LEVELS

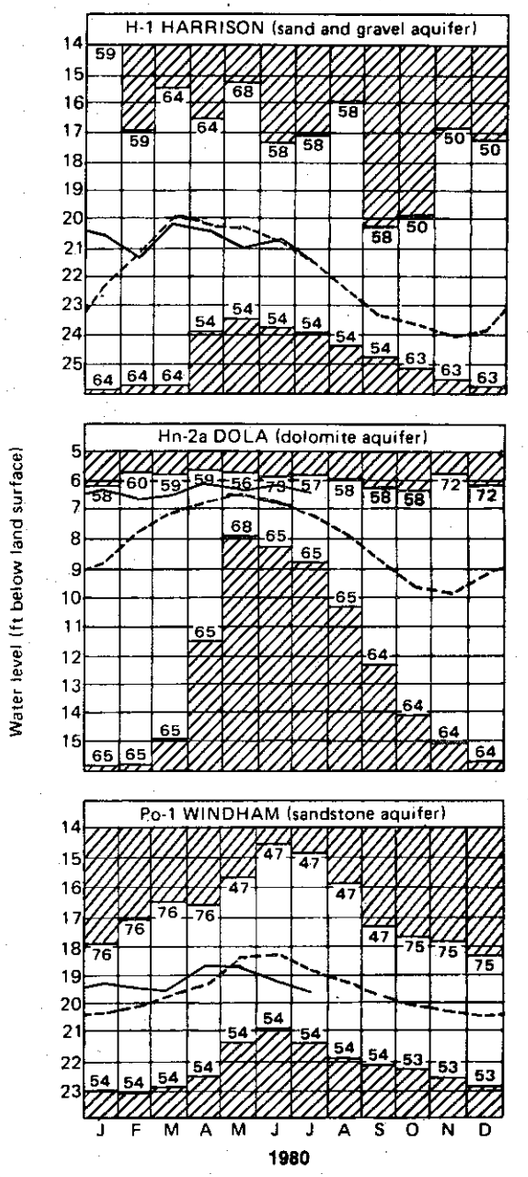


Base period: 1900-1974

LAKE ERIE mean level was 572.43 feet above IGLD (1955), 0.13 foot below last month's mean level and 1.53 feet above normal. The lake level is 0.25 foot above the level observed for July 1979 and 3.83 feet above Low Water Datum.

GROUND-WATER LEVELS for July are generally above normal throughout most of the state for the first time in five months. Generally, water levels held rather stable throughout the month in response to recharge from the excessive precipitation; the only exception is in the northeast section where water levels declined. The net declines from last month's mean levels were only about half that usually observed. Ground-water levels in general are above those levels observed for July 1979. The ground-water storage situation continues to be favorable throughout the state.

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964; Hn-2a, 1955-1973; Po-1, 1947-1964

normal - - - - current ——

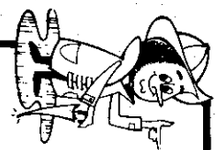
ACKNOWLEDGMENTS

This report has been compiled from Division of Water data and from information supplied by the following:

Precipitation data:
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service; The Miami Conservancy District; U.S. Army Corps of Engineers, Muskingum Area.

Streamflow and reservoir storage data:
U.S. Geological Survey, Water Resources Division.

Lake Erie level data:
U.S. Corps of Engineers, Detroit District.



OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water supply situation for August continues to be most satisfactory throughout the state. The heavy rains in August produced unseasonable recharge to most all sources of water supply. Precipitation for August was significantly above normal for the third consecutive month. Reservoir storage, streamflow and ground-water storage were generally above normal and above those levels observed for August 1979. Lake Erie mean level rose slightly and is the highest observed since August 1976.

NOTES AND COMMENTS

NEW PUBLICAITONS

The Division of Water announces the availability of the following publications:

THE GROUND-WATER RESOURCES OF HARRISON COUNTY by Katie Crowell

THE GROUND-WATER RESOURCES OF LORAIN COUNTY by Glenn W. Hartzell

THE GROUND-WATER RESOURCES OF ROSS COUNTY by James J. Schmidt.

These maps are three in a series of ground-water resources maps to be completed for each of Ohio's counties. The maps are designed as a gulde to locating new ground-water supplies or as an aid for expanding supplies already established. They will be useful to homeowners, developers, and planners. The maps are available for $2.50 a copy plus $.12 cents tax and $.25 cents mailing charges from the Publications Center, Ohio Department of Natural Resources, Fountain Square, Columbus, Ohio 43224. Checks or money orders should be made payable to the ODNR Publications Center.

WELL DRILLING DOWN

Although ground-water levels have continued to be very favorable for water supply, the drilling of new water wells in Ohio has declined significantly over the past year. Well logs turned in to the Division of Water under provisions of Section 1521.05 of the Ohio Revised Code are a measure of new well drilling. In August there were 427 well logs received compared to 1,131 during the same month last year. This continues the downward trend started in October last year. Instead of the approximately 15,000 well logs per year rate of the mid-70's, the outlook now is for about 7,000 well logs in 1980. This is another indication of the economic situation.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

AUGUST 1980

monthly water inventory report for ohio

Compiled by Leonard J. Harstine

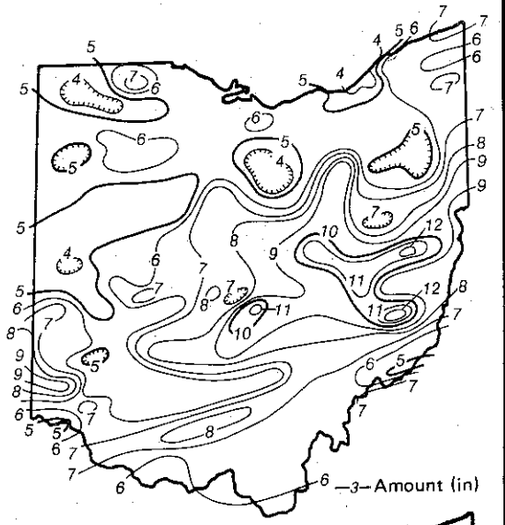
PRECIPITATION

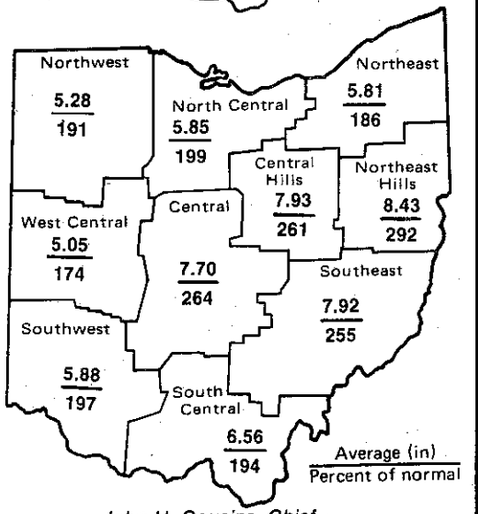
PRECIPITATION for August was noticeably above normal throughout the state for the third consecutive month. The average for the state as a whole was 6.64 inches, 3.64 inches above normal. Regional averages ranged from 8.43 inches, 5.54 inches above normal, for the Northeast Hills region to 5.05 inches, 2.15 inches above normal, for the West Central region. Clendening Dam, Harrison County, reported the greatest amount of precipitation, 12.35 inches, for the month and Ashland, Ashland County, reported the least amount, 3.03 inches. About half of the state received more than 6 inches of precipitation during the month; many stations reported more than 10 inches.

There were significant amounts of precipitation throughout most of the state during every week of the month. However, there was a six day period between the 22 and 27 when most areas of the state received very little precipitation. The bulk of the month's precipitation was produced by very widespread, intense thunderstorms in many areas of the state. The most notable of these occurred on August 10 and 11 in Guernsey, Belmont, Licking and Muskingum Counties. During this storm, 7.5 to 8.0 inches of rain fell in the Cambridge area in about 18 hours resulting in major flooding over a widespread area. There was an unofficial report of 11 to 12 inches in an area just west of Dresden in Muskingum County. Wills Creek, at Cambridge, reached the highest stage since 1935. It has been reported that this flood caused more propety damage than the 1913 flood due to the economic development and growth of the city. It is significant that the American Meterological Society recently stated that flash floods now rank as the major killer and destroyer among weather-related disasters in the U.S.A.

Cumulative precipitation for the first eight months of the 1980 calendar year is above normal throughout the state. The average for the state as a whole is 31.61 inches, 4.82 inches above normal. Regional averages range from 37.67 inches, 10.97 inches above normal, for the Northeast Hills region to 26.64 inches, 2.32 inches above normal, for the North Central region.

Cumulative precipitation for the 1980 water year thus far is also above normal throughout the state. The average for the state as a whole is 39.77 inches, 5.48 inches above normal. Regional averages range from 44.80 inches, 10.45 inches above normal, for the Northeast Hills region to 34.80 inches, 3.59 inches above normal, for the North Central region.

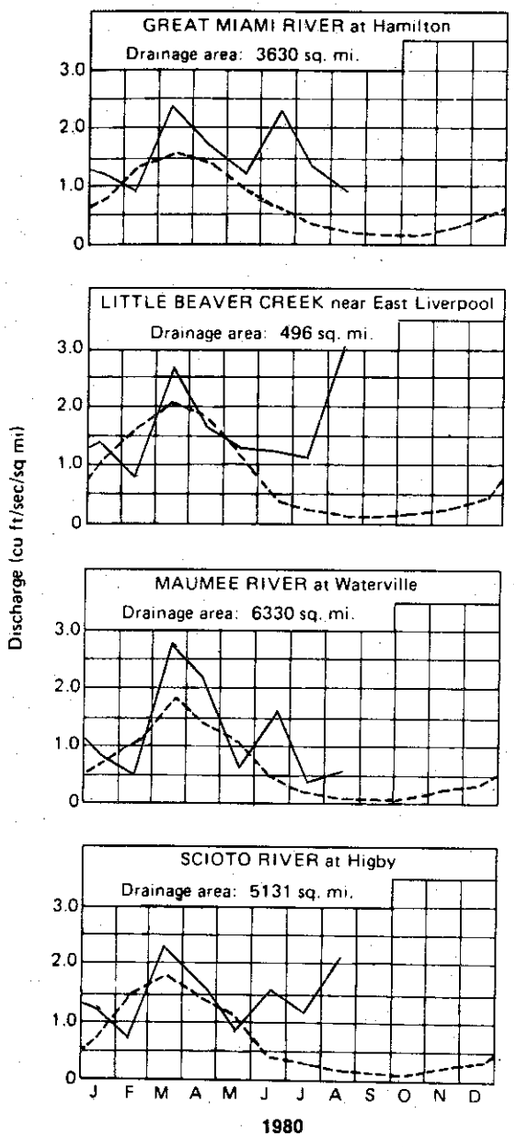




DIVISION OF WATER

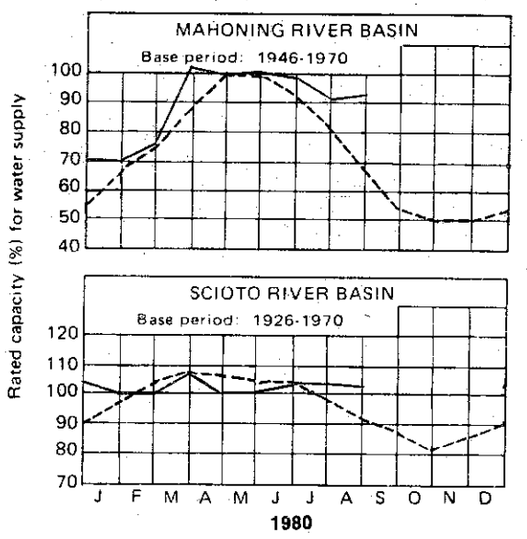
John H. Cousins, Chief

MEAN STREAM DISCHARGE



Base period for all streams: 1941-1970

RESERVOIR STORAGE FOR WATER SUPPLY

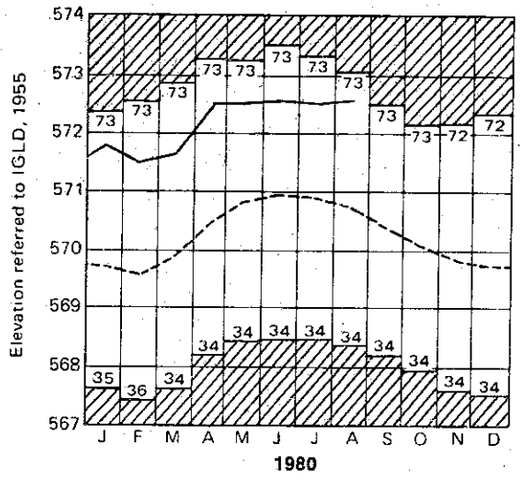


RESERVOIR STORAGE for water supply for August continued above normal in both the Mahoning River and the Scioto River basins. Storage at the month end increased slightly for the Mahoning River basin and decreased slightly for the Scioto River basin reservoirs. Reservoir storage at the month end for the Mahoning basin index reservoirs was 94 percent of rated capacity for water supply compared to 92 percent for last month and 83 percent for August 1979. Reservoir storage at the month end for the Scioto basin index reservoirs was 102 percent of rated capacity for water supply compared to 105 percent for last month and 102 percent for August 1979.

STREAMFLOW for August was excessive throughout the state for the third consecutive month. The heavy rains of August 10 and 11 caused major flooding in Guernsey, Belmont, Licking and Muskingum Counties. The U.S. Geological Survey, Water Resources Branch, reports that Wills Creek at Cambridge reached the highest stage observed since 1935. The 1935 peak occurred before Senecaville Dam was constructed. Flash flooding was observed from local storms in many other areas of the state during the month.

Mean discharge and percent of normal for the index gaging stations were as follows: Great Miami River, 3,436 cfs, 441 percent; Little Beaver Creek, 1,500 cfs, 2,193 percent; Maumee River, 3,301 cfs, 555 percent; Scioto River, 10,800 cfs, 1,195 percent.

LAKE ERIE LEVELS

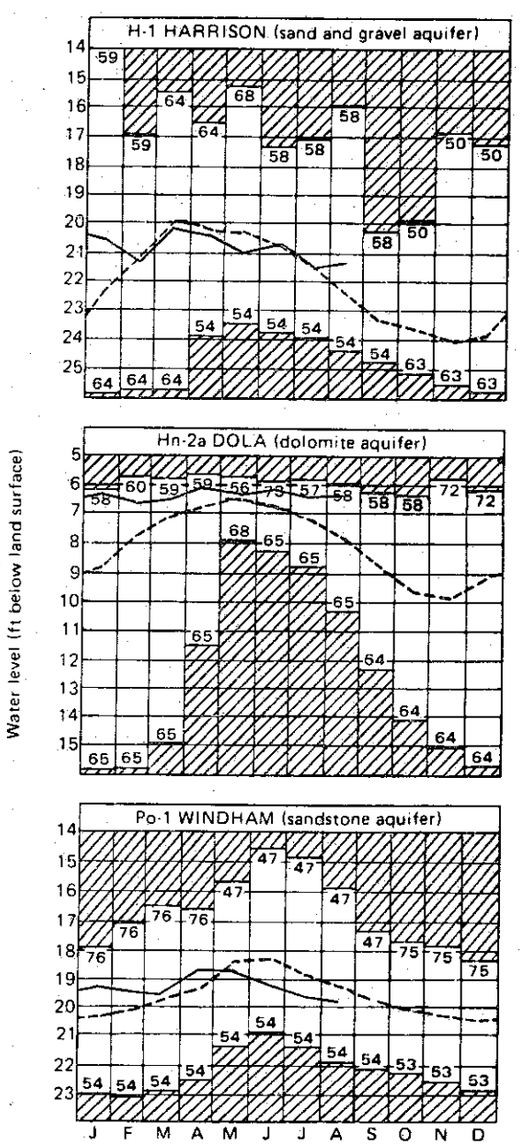


Base period: 1900-1974

LAKE ERIE mean level rose slightly and is the highest observed since August 1976. The mean level for August was 572.58 feet above IGLD (1955), 0.15 foot above last month's mean level and 1.87 feet above normal. The lake level is 0.52 foot above the level observed for August 1979 and 3.98 feet above Low Water Datum. The record level for August occurred in 1973 and was 573.03 feet above IGLD (1955).

GROUND-WATER LEVELS for August rose significantly throughout most of the state in response to the excessive precipitation in both July and August. The only exceptions were in consolidated rock aquifers in the northern portion of the state where the effect of recharge is generally delayed. Thus, water levels in these aquifers can be expected to rise during the current month. Water levels in two of the key index observation wells, Fa-1 at Jasper Mills, Fayette county and Fr-10 at the O.S.U. Farms, Franklin County, recorded record high levels for August for their respective periods of record beginning in 1947. Ground-water levels are generally 0.5 to 2.5 feet above those levels observed for August 1979; the only exceptions are in the consolidated rock aquifers in the northeast and the unconsolidated sand and gravel aquifers in the southwestern portion of the state. Water levels are from 1 to 4 feet above normal throughout the state; the only exception being in the northeast where water levels are about a foot below normal. The ground-water supply situation continues to be very favorable throughout the state.

GROUND-WATER LEVELS



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normal - - - - current ——

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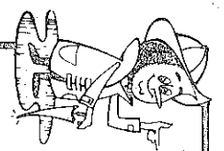


OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

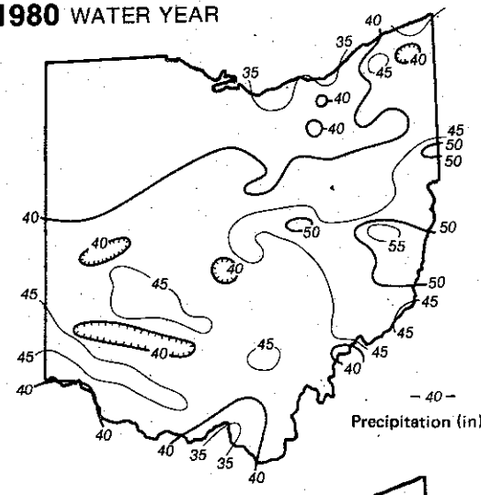
PRECIPITATION– *continued*

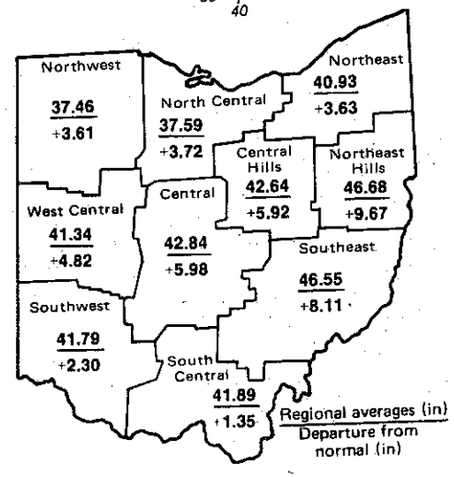
during June, July, August and September of the 1980 water year, the nominal water supply depletion period, precipitation was again noticeably above normal. In fact, heavy rains during the summer months caused considerable flooding in the low lying areas throughout the state. Of particular severity was major flooding in the Cambridge area resulting from heavy rains on August 10 and 11.

SUMMARY

The water-supply situation was very favorable throughout the 1980 water year. Water supplies held up very well during the recharge period despite the lack of recharge and continued to hold this favorable position in response to the above normal precipitation during the remainder of the year. Precipitation for September was below normal throughout the state. However, reservoir storage, streamflow, and ground-water storage remained above normal. Lake Erie level declined somewhat but was only 0.21 foot below the record high set for September in 1973.

1980 WATER YEAR





DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

SEPTEMBER 1980

monthly water inventory report for ohio

Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for September was below normal throughout the state; the only exceptions were in the North Central and Northeast regions where precipitation was above normal by less than a half inch. The average for the state as a whole was 2.10 inches, 0.65 inch below normal. Regional averages ranged from 3.25 inches, 0.43 inch above normal, for the Northeast region to 1.53 inches, 1.23 inches below normal, for the Southwest region. Clendening Dam, Harrison County, reported the greatest amount of precipitation for the month, 4.76 inches, and Germantown Dam, Montgomery County, reported the least amount, 0.65 inch.

Precipitation for September was generally limited to light scattered showers. There was between 1.5 and 3 inches of precipitation during September in most areas of the state; a few areas in the east and northeast received in excess of 4 inches and numerous isolated stations throughout the state received less than one inch. The bulk of the month's precipitation in the southern and eastern portions of the state fell on the 5th and 9th.

Cumulative precipitation for the first nine months of the 1980 calendar year remained above normal throughout the state. The average for the state as a whole is 33.71 inches, 4.17 inches above normal. Regional averages range from 39.55 inches, 10.19 inches above normal, for the Northeast Hills region to 28.82 inches, 2.16 inches above normal, for the Northwest region.

Precipitation for the 1980 water year which began October 1, 1979 and ended September 30, 1980, was above normal throughout the state. The average for the state as a whole was 41.87 inches, 4.83 inches above normal. Regional averages ranged from 46.68 inches, 9.67 inches above normal, for the Northeast Hills region to 37.46 inches, 3.61 inches above normal, for the Northwest region. Clendening Dam, Harrison County reported the greatest amount of precipitation, 55.61 inches, for the water year and Oberlin, Lorain County, reported the least amount, 31.94 inches. An isohyetal map and regional averages and departures from normal for the 1980 water year appear on the last page of this report.

The water supply situation was very favorable throughout the state in so far as precipitation was concerned and remained so at the year end. Generally, precipitation was below normal during the first half of the water year, the nominal recharge period, and above normal during the last half, the nominal water supply depletion period. However, there was ample precipitation during the recharge period to maintain good water supplies; this was primarily due to the fact that precipitation had been markedly above normal during the last four months of the 1979 water year. Similarly

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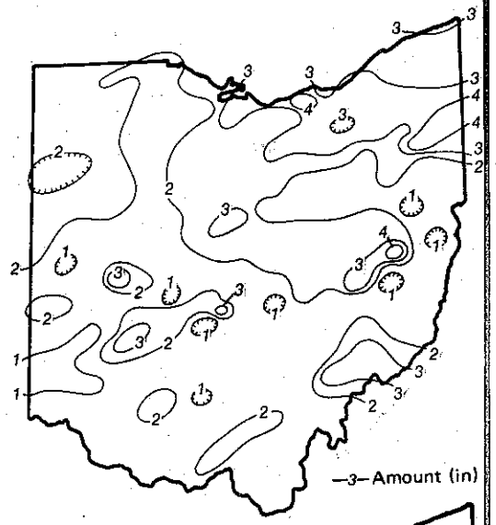
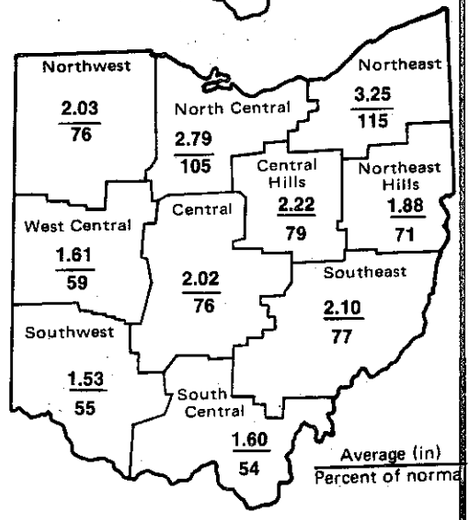
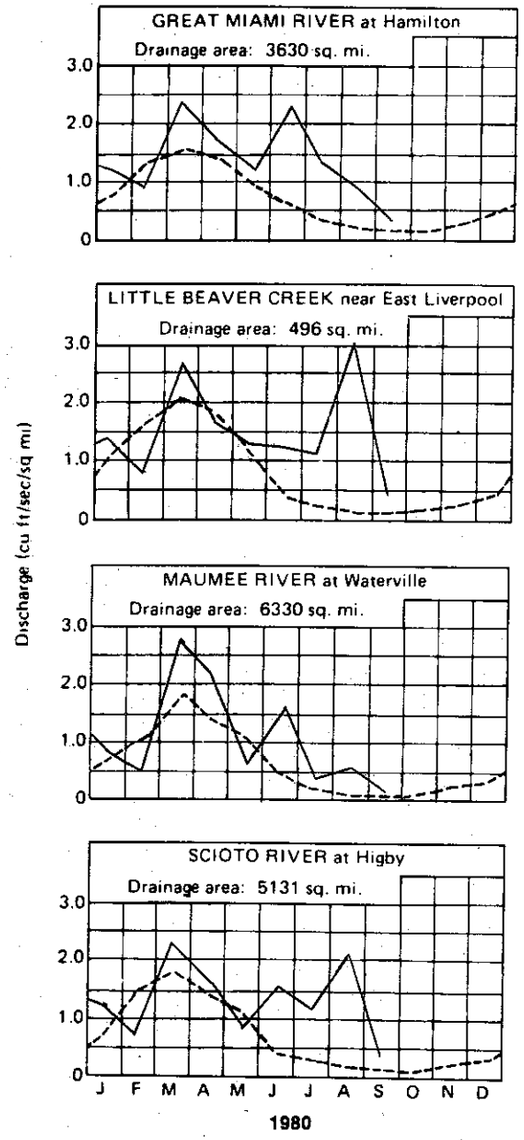




DIVISION OF WATER

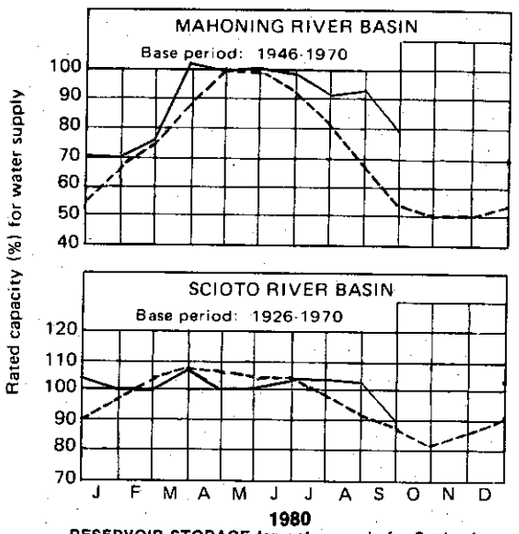
John H. Cousins, Chief

MEAN STREAM DISCHARGE



Base period for all streams: 1941-1970

RESERVOIR STORAGE FOR WATER SUPPLY

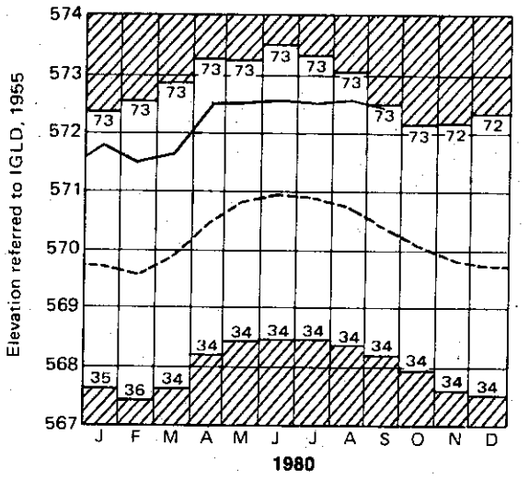


RESERVOIR STORAGE for water supply for September showed marked declines in both the Mahoning River and the Scioto River basins in response to the below normal precipitation. Storage at the month end, however, remained noticeably above normal in the Mahoning River basin and was only slightly above normal for the Scioto River basin. Reservoir storage at the month end for the Mahoning basin index reservoirs was 80 percent of rated capacity for water supply compared to 94 percent for the last month and 82 percent for September 1979. Reservoir storage at the month end for the Scioto basin index reservoirs was 90 percent of rated capacity for water supply compared to 102 percent for last month and 110 percent for September 1979. Reservoir storage for the 1980 water year for the state as a whole was generally noticeably above normal during the first six months and near normal during the last six months.

STREAMFLOW for September remained excessive throughout the state for the fourth consecutive month. These unusually high flows, which have been prevalent during the past four months, were sustained by the above normal precipitation and unusually high ground-water levels in the preceding three months. Mean discharge and percent of normal for the index gaging stations were as follows: Great Miami River, 1,255 cfs, 207 percent; Little Beaver Creek, 231 cfs, 379 percent; Maumee River, 1,200 cfs, 323 percent, Scioto River, 2,484 cfs, 412 percent.

Streamflow during the 1980 water year was excessive more than 60 percent of the time throughout most areas of the state. The storm of August 10 and 11, resulted in the highest stage since 1935 for Wills Creek at Cambridge. Mean discharge and percent of normal for the water year for the index gaging stations were as follows: Great Miami River, 5,032 cfs, 154 percent; Little Beaver Creek, 680 cfs, 157 percent; Maumee River, 6,338 cfs, 129 percent; Scioto River, 6,945 cfs, 153 percent. This is the second consecutive water year for which streamflows have been most favorable throughout the state during the entire water year.

LAKE ERIE LEVELS



Base period: 1900-1974

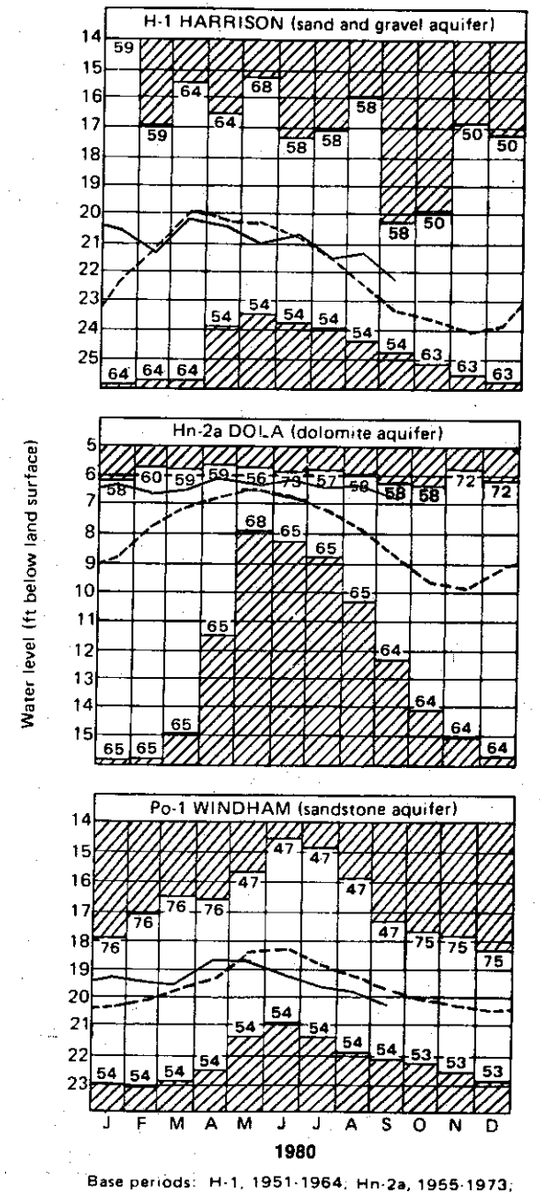
LAKE ERIE mean level for September was 572.30 feet above IGLD (1955), 0.26 foot below last month's mean level and 1.89 feet above normal. The lake level is 0.30 foot above the level observed for September 1979 and 3.70 feet above Low Water Datum. The lake level this month was only 0.21 foot below the record high level for September established in 1973. The lake level was unusually high during the entire 1980 water year and reached the highest levels observed since August 1976 in both June and August.

GROUND-WATER LEVELS throughout the state declined from last month's levels during September in response to the below normal precipitation. Water levels in unconsolidated sand and gravel aquifers adjacent to streams showed marked declines for the month while declines were less than those usually observed in consolidated rock aquifers. Ground-water levels were generally below those levels observed for September 1979, however they are from 1 to 5 feet above normal; the only exception is in observation well Po-1 at Windham, Portage County, where the water level is below normal. The water levels recorded in two of the index observation wells, Fa-1 at Jasper Mills, Fayette County, and Fr-10 at OSU Farms, Franklin County, were record high levels for September.

Ground-water levels were very favorable throughout the 1980 water year. Generally, water levels which were unusually high at the beginning of the water year did not rise nearly as much as might have been expected due to the lack of recharge. However, the declines during the current depletion period were not as great due to the above normal precipitation during the last six months of the water year. Ground-water levels made substantial gains during the 1980 water year and held a very favorable position at the year end.

normal - - - - - current ——

GROUND-WATER LEVELS



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This report has been compiled from Division of Water data and from information supplied by the following:

Precipitation data:
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service; The Miami Conservancy District; U.S. Army Corps of Engineers, Muskingum Area.

Streamflow and reservoir storage data:
U.S. Geological Survey, Water Resources Division.

Lake Erie level data:
U.S. Corps of Engineers, Detroit District.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water supply situation remains very favorable throughout the state. Precipitation for October was below normal for the most of the state. Reservoir storage, streamflow and ground-water storage remains about normal. Lake Erie declined but remained noticeably above normal.

NOTES AND COMMENTS

Bucyrus Reservoir---Another milestone for the Northwest Ohio Water Development Plan.

In the late fall of 1978 two of the reservoirs serving Bucyrus were virtually dry and the third was dangerously low. The flow in the Sandusky River at Bucyrus was practically nil. Taste and odor problems plagued water users. Water was hauled to Bucyrus in tankers from Upper Sandusky. Buffalo tanks (500 gallon water trailers) were borrowed from the National Guard, filled, and placed at several locations in the city so citizens could fill jugs from them.

This water-short situation served to punctuate a recommendation of ODNR's Northwest Ohio Water Development plan, namely that Bucyrus needed more water supply.

That very fall (1978) Governor Rhodes and Mayor Outhwaite signed a cooperative agreement whereby the state would provide $1,800,000 toward the construction of an upground reservoir with the city of Bucyrus providing the rest of the funding.

Currently the land on which the billion gallon reservoir will be constructed has been purchased and design plans are in progress. Bids for building the project should be requested this winter and construction should begin in the spring of 1981. If this schedule is realized, this upground reservoir, the ninth to be constructed with state assistance, should be ready for service in 1982.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

OCTOBER 1980

monthly water inventory report for ohio

Compiled by Leonard J. Harstine

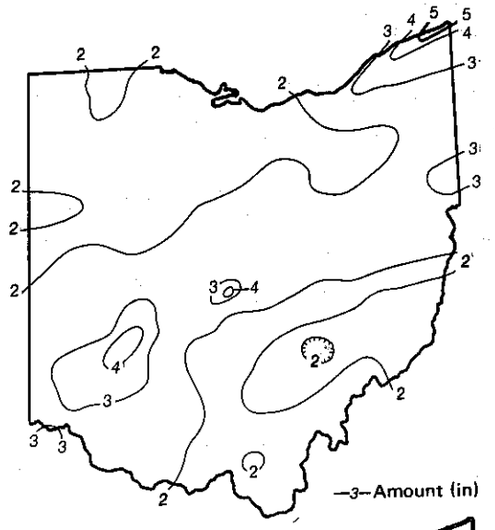
PRECIPITATION

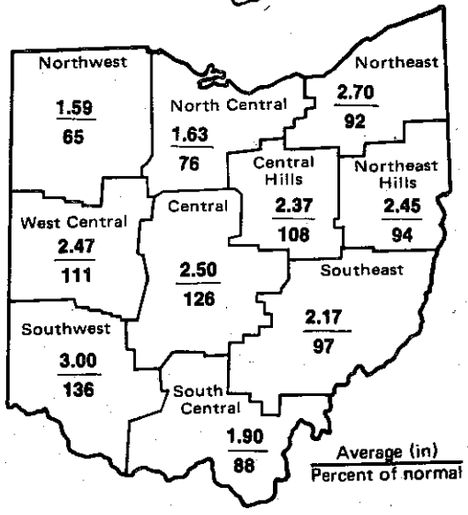
PRECIPITATION for October was generally below normal in Ohio, but in the West Central, Central, Central Hills and Southwest regions precipitation was above normal. The average for the state as a whole was 2.28 inches, 0.03 inch below normal. Regional averages ranged from 3.00 inches, 0.79 inch above normal, for the Southwest region to 1.59 inches, 0.86 inch below normal, for the Northwest region. Ashtabula, Ashtabula County, reported the greatest amount of precipitation for the month, 5.65 inches, and Jackson, Jackson County, reported the least amount, 1.16 inches.

Precipitation for the month was rather uniform throughout the state. Most areas of the state received between 1.5 and 3 inches of precipitation. The only exception was in the northeast which received between 3 and 5.65 inches. The bulk of the month's precipitation was recevied during two storms on the 18th and the 25th.

Cumulative precipitation for the first 10 months of the 1980 calendar year continues to be above normal throughout the state. The average for the state as a whole is 35.99 inches, 4.14 inches above normal. Regional averages ranged from 42.00 inches, 10.04 inches above normal, for the Northeast Hills region to 30.41 inches, 1.30 inches above normal, for the Northwest region.

This is the first month of the 1981 water year, which began on October 1, 1980 and will end on September 30, 1981. The water year, a common reference period for surface-water reports, is also useful in discussion of ground-water phenomena. This is also the beginning of the nominal recharge period for water supplies. Precipitation for the first month of the water year was below normal for most of the state. Since precipitation was generally below normal in both September and October, water supplies continue to be depleted by normal use. Even so, the water supply situation remains very favorable throughout the state.

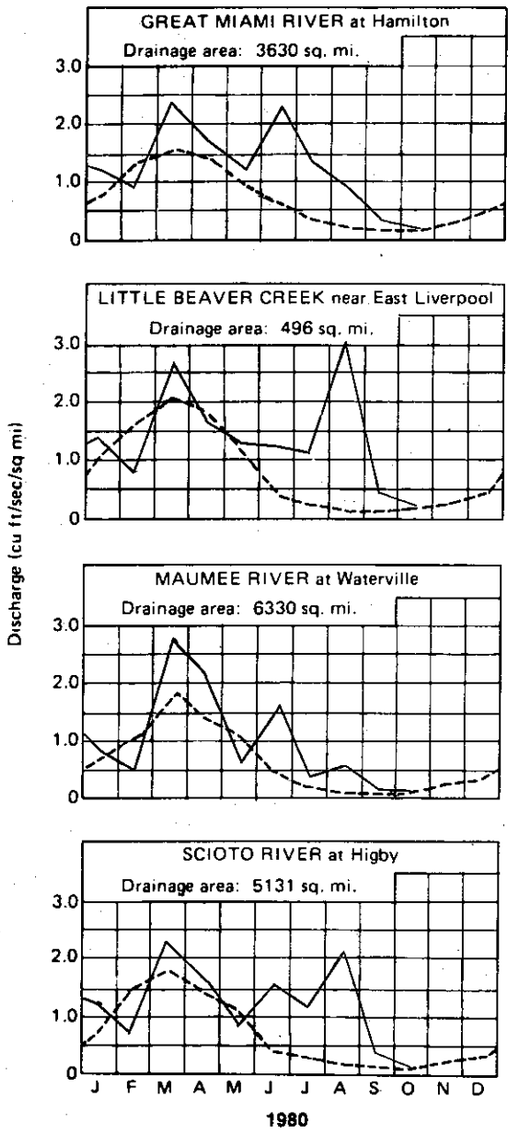




DIVISION OF WATER

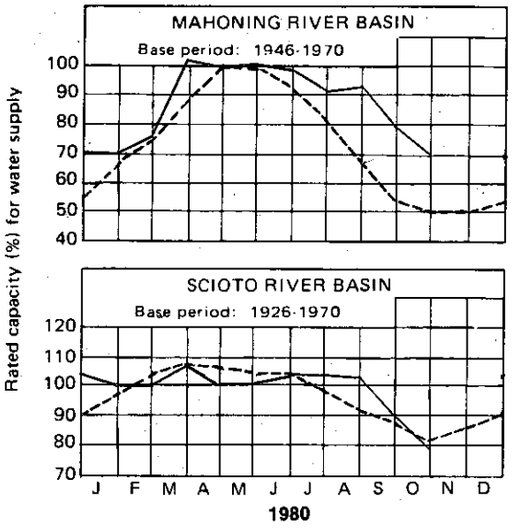
John H. Cousins, Chief

MEAN STREAM DISCHARGE



Base period for all streams: 1941-1970

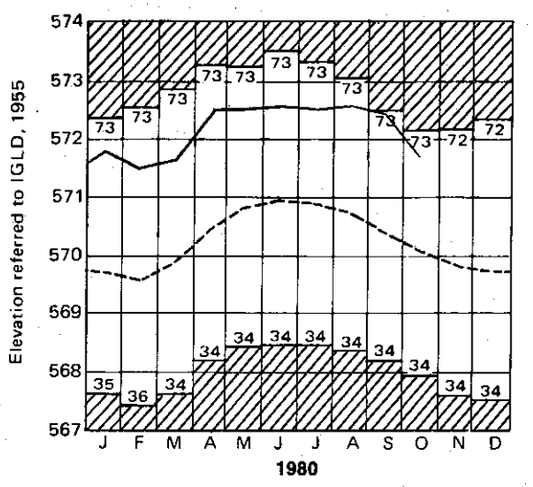
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply for October declined, but remained noticeably above normal in the Mahoning River basin and fell slightly below normal in the Scioto River basin. Reservoir storage at the month end for the Mahoning basin index reservoirs was 70 percent of rated capacity for water supply compared to 80 percent for last month and 63 percent for October 1979. Storage at the month end for the Scioto basin index reservoirs was 79 percent of rated capacity for water supply compared to 90 percent for last month and 102 percent for October 1979.

STEAMFLOW for October was normal throughout most of the state; the only exceptions were in the south central and southwestern portions where streamflow continued to be excessive for the fifth consecutive month. Mean discharge and percent of normal for the index gaging stations were as follows: Great Miami River, 1,069 cfs, 179 percent; Little Beaver Creek, 135 cfs, 178 percent; Maumee River, 395 cfs, 78 percent; Scioto River, 1,170 cfs, 201 percent.

LAKE ERIE LEVELS

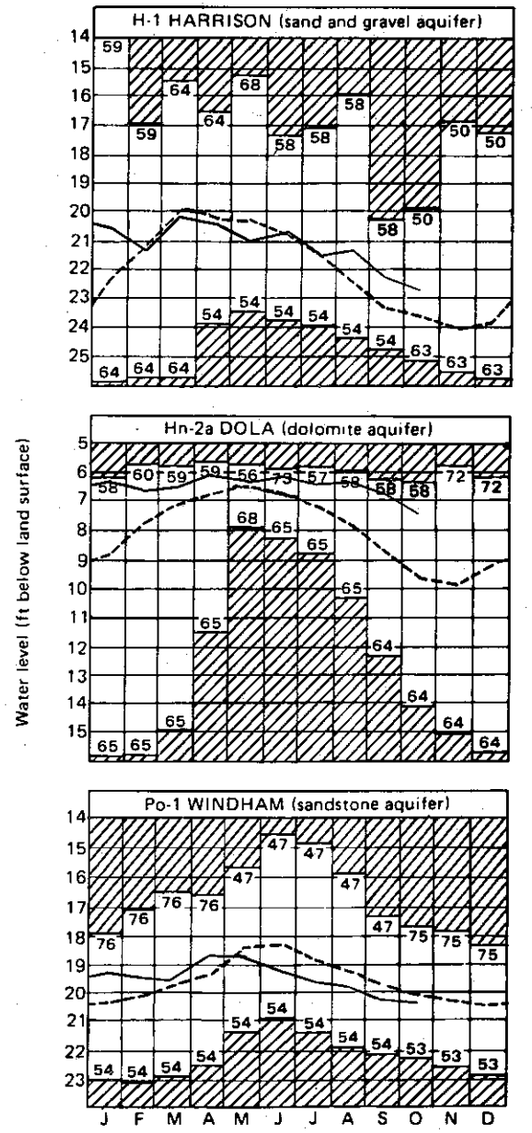


Base period: 1900-1974

LAKE ERIE mean level for October was 571.72 feet above IGLD (1955), 0.58 foot below last month's mean level and 1.63 feet above normal. The lake level was the same level as observed for October 1979 and was 3.12 feet above Low Water Datum.

GROUND-WATER LEVELS for October show marked declines throughout the state. In most areas the declines for the month were twice that usually observed for October. This is primarily due to the fact that water levels in general have been unusually high during the past two months. Ground-water levels are generally below those levels observed in October 1979; the only exceptions are in observation wells Fa-1 at Jasper Mills, Fayette County and Fr-10 on the OSU Farms, Franklin County, where water levels were above those levels observed in 1979. Both of these wells have recorded record high monthly levels for the third consecutive month. Water levels are generally above normal throughout most of the state; the only exceptions being in the east and northeast where water levels are below normal. The ground-water storage situation remains very favorable throughout the state.

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964. Hn-2a, 1955-1973; Po-1, 1947-1964

normal ----- current ——

ACKNOWLEDGMENTS

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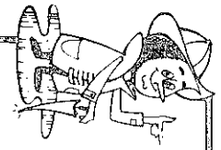


OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water supply situation for November remained very satisfactory throughout the state despite the fact that precipitation was below normal for the third consecutive month. Reservoir storage, streamflow and ground-water storage remained favorable in most areas of the state. Lake Erie level declined for the third consecutive month and was 0.94 foot below the record high for November set in 1972.

NOTES AND COMMENTS
NEW PUBLICATIONS

The Division of Water announces the availability of the following publications:

THE GROUND-WATER RESOURCES OF KNOX COUNTY by James J. Schmidt

THE GROUND-WATER RESOURCES OF PICKAWAY COUNTY by James J. Schmidt

THE GROUND-WATER RESOURCES OF SANDUSKY COUNTY by James J. Schmidt

These maps are three of a series of ground-water resources maps to be completed for each of Ohio's counties. The maps are designed as a guide to locating new ground-water supplies or as an aid for expanding supplies already established. They will be useful to homeowners, developers, and planners.

In addition, ground-water resources maps are available for the following counties: Ashland, Ashtabula, Champaign, Columbiana, Cuyahoga, Delaware, Geauga, Harrison, Holmes, Lake, Lorain, Mahoning, Marion, Medina, Portage, Richland, Ross, Stark, Summit, Trumbull, Union, and Wayne. The maps are available for $2.50 a copy plus $.12 cents tax and $.25 cents mailing charges from the Publications Center, Ohio Department of Natural Resources, Fountain Square, Columbus, Ohio 43224. Checks or money orders should be made payable to the ODNR Publications Center.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

NOVEMBER 1980

monthly water inventory report for ohio

Compiled by Leonard J. Harstine

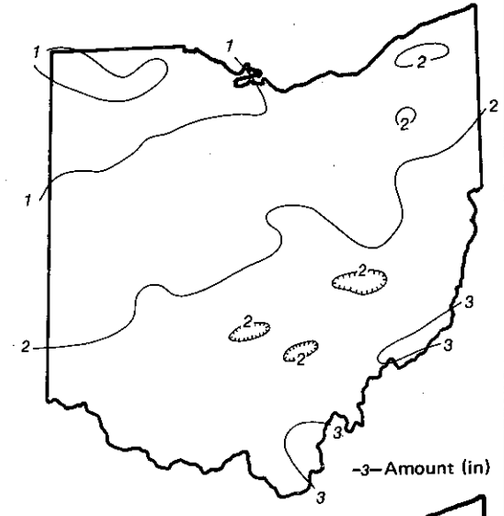
PRECIPITATION

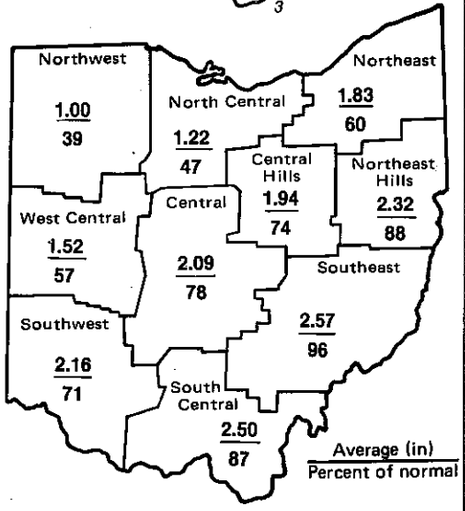
PRECIPITATION for November was below normal throughout the state. The average for the state as a whole was 1.92 inches, 0.82 inch below normal. This is the third consecutive month for which precipitation has been below normal for the state as a whole. Regional averages ranged from 2.57 inches, 0.12 inch below normal, for the Southeast region to 1.00 inch, 1.56 inches below normal, for the Northwest region. Gallipolis, Gallia County, and Marietta, Washington County, reported the greatest amount of precipitation for the month, 3.39 inches, and Grover Hill, Paulding County, reported the least amount, 0.65 inch.

Precipitation for November was very sparse during the first two weeks of the month. The bulk of the month's precipitation occurred on the 17th, 23rd, 24th and 26th. The first big snow of the season fell on the 17th when amounts up to 7 inches were reported across the central portion of the state. Chardon, Geauga County reported 10.5 inches of snow for the month which is slightly below normal for that station.

Cumulative precipitation for the 1980 calendar year thus far for the state as a whole averages 37.91 inches, 3.32 inches above normal. Regional averages range from 44.32 inches, 9.73 inches above normal, for the Northeast Hills region to 31.41 inches, 0.26 inch below normal for the Northwest region.

Cumulative precipitation for the first two months of the 1981 water year is below normal throughout the state. The average for the state as a whole is 4.20 inches, 0.85 inch below normal. Regional averages range from 5.16 inches, 0.08 inch below normal, for the Southwest region to 2.59 inches, 2.42 inches below normal, for the Northwest region. Although the water supply situation remains very favorable throughout the state, there has been very little recharge thus far in the first two months of the nominal water supply replenishment period.

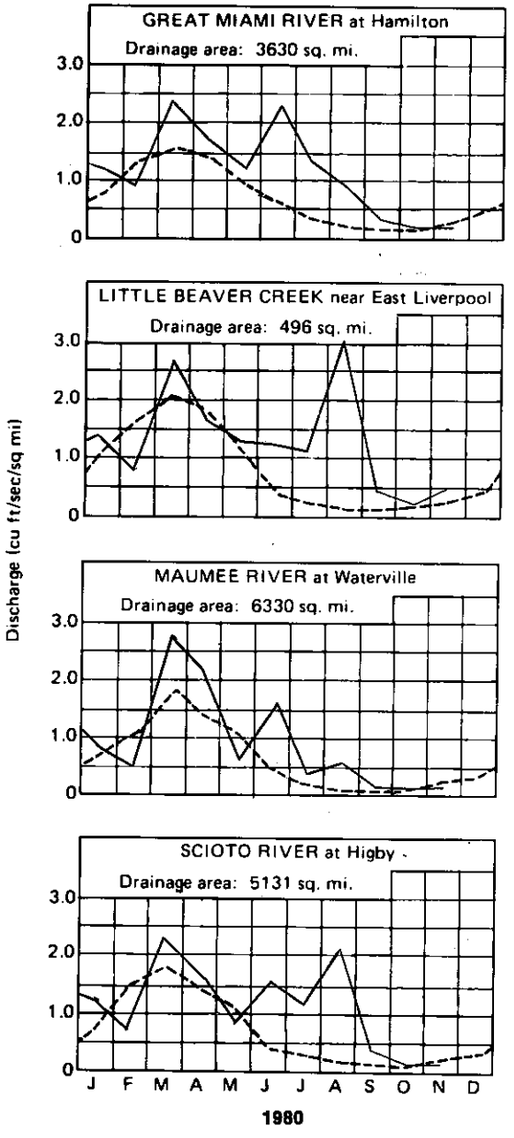




DIVISION OF WATER

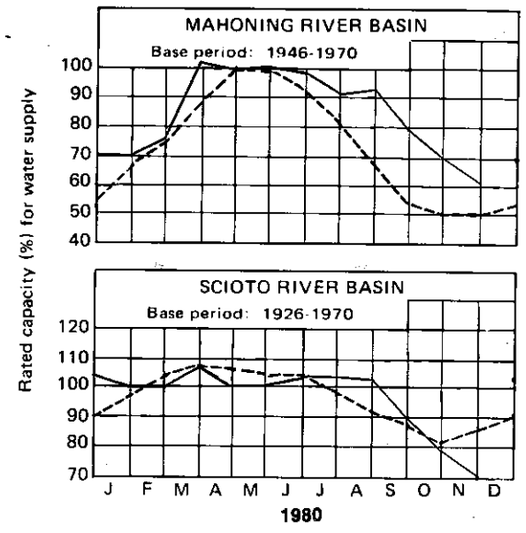
John H. Cousins, Chief

MEAN STREAM DISCHARGE



Base period for all streams: 1941-1970

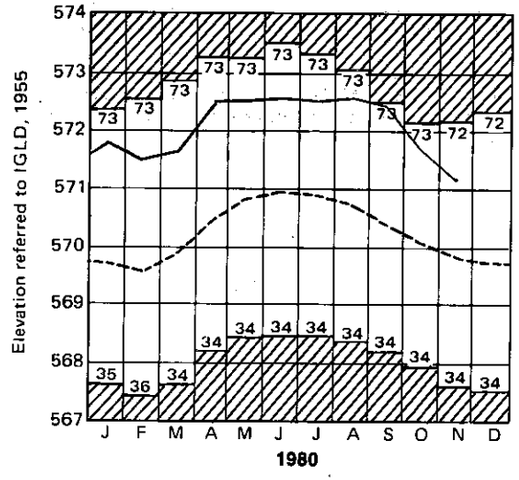
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply for November showed noticeable declines in both the Mahoning River and the Scioto River basins in response to the below normal precipitation. Storage in the Mahoning basin reservoirs remained slightly above normal at the month end while it was noticeably below normal in the Scioto basin reservoirs. Reservoir storage at the month end for the Mahoning basin index reservoirs was 63 percent of rated capacity for water supply compared to 70 percent for last month and 60 percent for November 1979. Reservoir storage at the month end for the Scioto basin index reservoirs was 72 percent of rated capacity for water supply compared to 79 percent for last month and 109 percent for November 1979.

STREAMFLOW for November was normal throughout most of the state; the only exception was in the Northeast Hills region where it was slightly above normal in response to near normal precipitation. Mean discharge and percent of normal for the index gauging stations were as follows: Great Miami River, 1,060 cfs, 106 percent; Little Beaver Creek, 246 cfs, 170 percent; Maumee River, 645 cfs, 42 percent; Scioto River, 1,437 cfs, 127 percent. Cumulative runoff for the first two months of the 1981 water year is slighly above normal for most of the state; the only exception is in the northwestern portion of the state where it is slightly below normal.

LAKE ERIE LEVELS



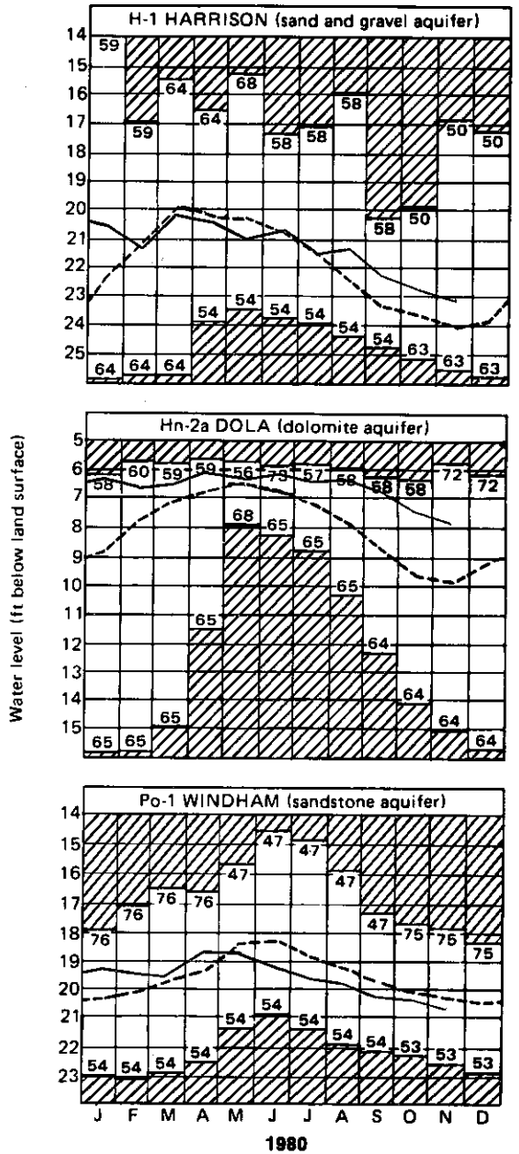
Base period: 1900-1974

LAKE ERIE mean level showed a marked decline for the third consecutive month. The mean level for November was 571.23 feet above IGLD (1955), 0.49 foot below last month's mean level and 1.41 feet above normal. The lake level is 0.18 foot below the level observed for November 1979 and 2.53 feet above Low Water Datum.

GROUND-WATER LEVELS for November continue to show marked declines throughout the state for the second consecutive month in response to the below normal precipitation. Water levels in most areas of the state were noticeably below those levels observed last month and for November 1979. The only exception was observation well Fr-10 at OSU Farms, Franklin County, where the water level declined slightly from last month but was above that level observed for November 1979. Observation well Fr-10 also recorded a record high monthly level for the fourth consecutive month. Ground-water levels, in general, remain above normal throughout most of the state. In some consolidated rock aquifers they are slightly below normal. The ground-water storage situation continues to remain favorable throughout the state despite the lack of recharge thus far in this water year.

normal - - - - current ——

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964; Hn-2a, 1955-1973; Po-1, 1947-1964

December 1980

Issue unavailable

Contact the Ohio Department of Natural Resources, Division of Soil & Water, Water Inventory & Planning Section, for further information or questions.